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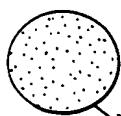
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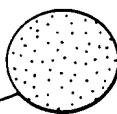
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FIG. 1

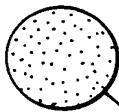


[ SEQ. ID NO: 3]

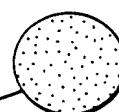
X-C-C-T-T-G-A-G-A-T-T-T-C-C-C-T-C  
5' 3'

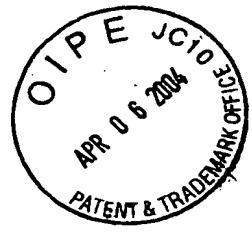


G-G-A-A-C-T-C-T-A-A-A-G-G-G-A-G-X  
3' 5'  
[ SEQ. ID NO: 4]



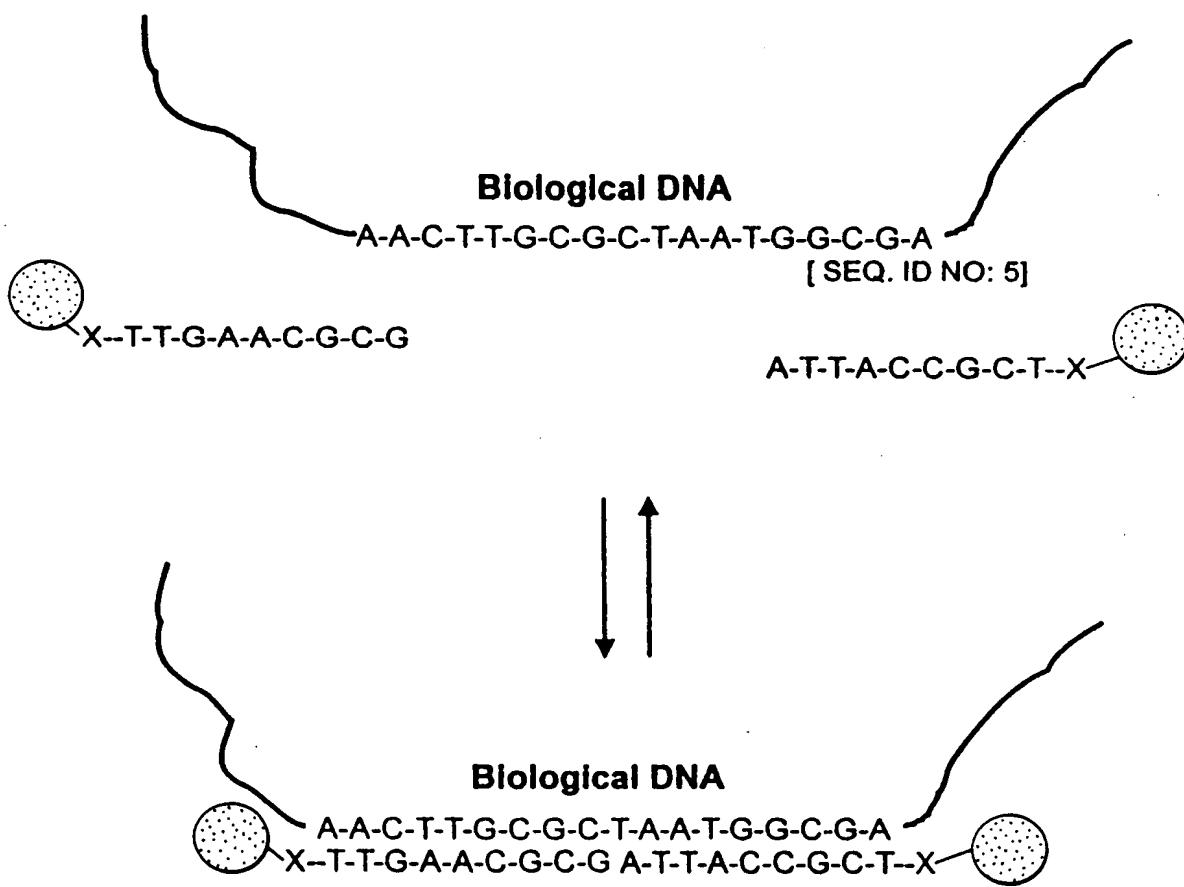
X-C-C-T-T-G-A-G-A-T-T-T-C-C-C-T-C  
G-G-A-A-C-T-C-T-A-A-A-G-G-G-A-G-X

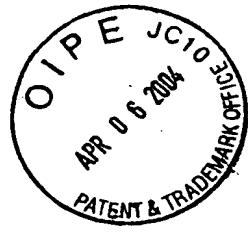




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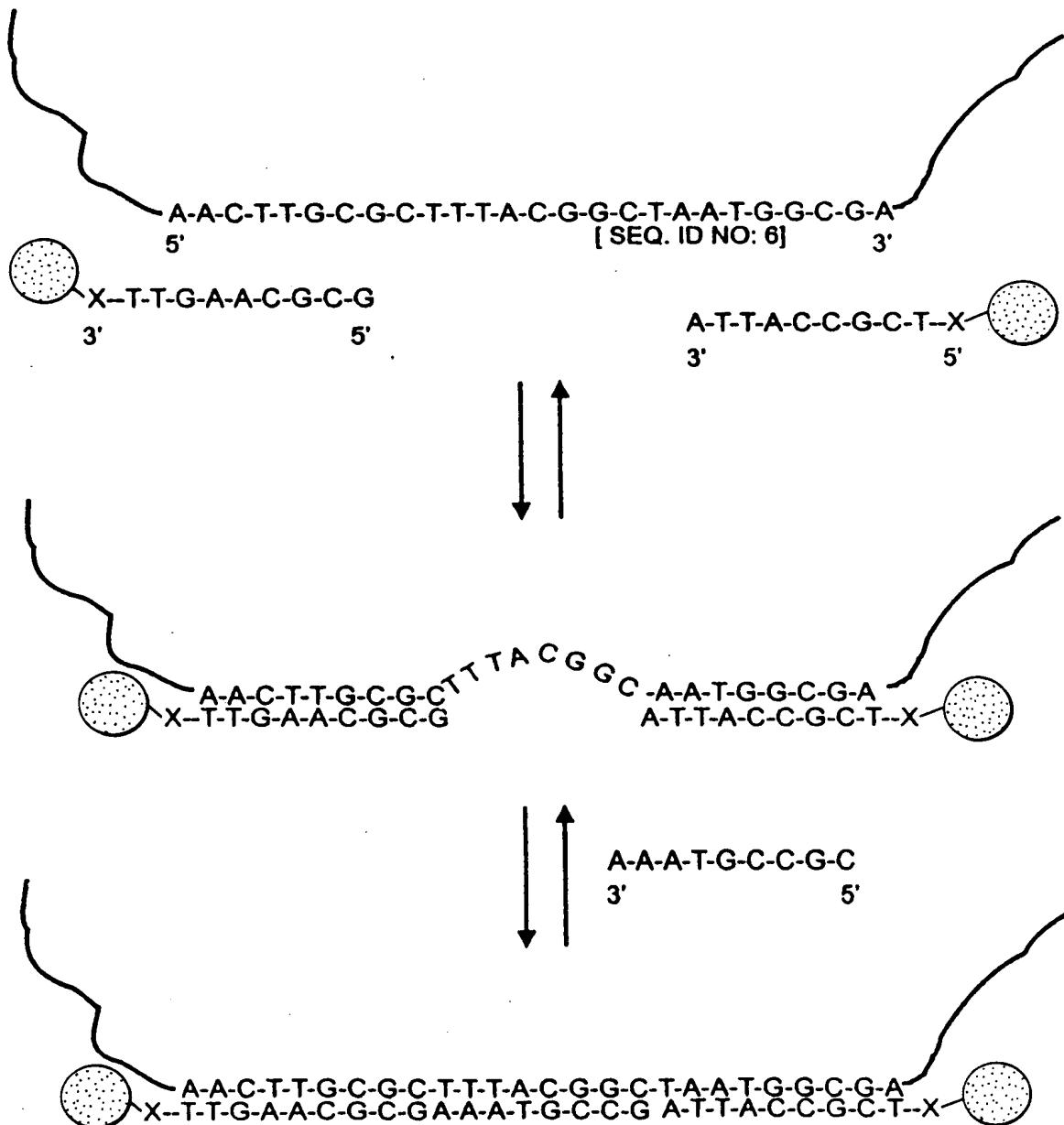
FIG. 2

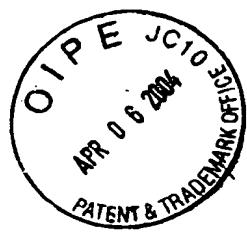




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FIG. 3





**FIG. 4**

$\begin{array}{c} 5' \\ \text{A-T-G-G-C-A-A-C-T-A-T-A-C-G-C-G-C-T-A-G} \\ | \\ \text{A-T-A-T-G-C-G-C-G-A-T-C-T-C-A-G-C-A-A-A} \\ | \\ \text{[SEQ. ID NO:1]} \end{array}$

$\begin{array}{c} 5' \\ \text{X-T-A-C-C-G-T-T-G} \\ | \\ \text{3'} \end{array}$

$\begin{array}{c} 5' \\ \text{A-T-G-G-C-A-A-C-T-A-T-A-C-G-C-T-A-G} \\ | \\ \text{A-T-A-T-G-C-G-C-G-A-T-C-T-C-A-G-C-A-A-A} \\ | \\ \text{[SEQ. ID NO:2]} \end{array}$

Linking oligonucleotide

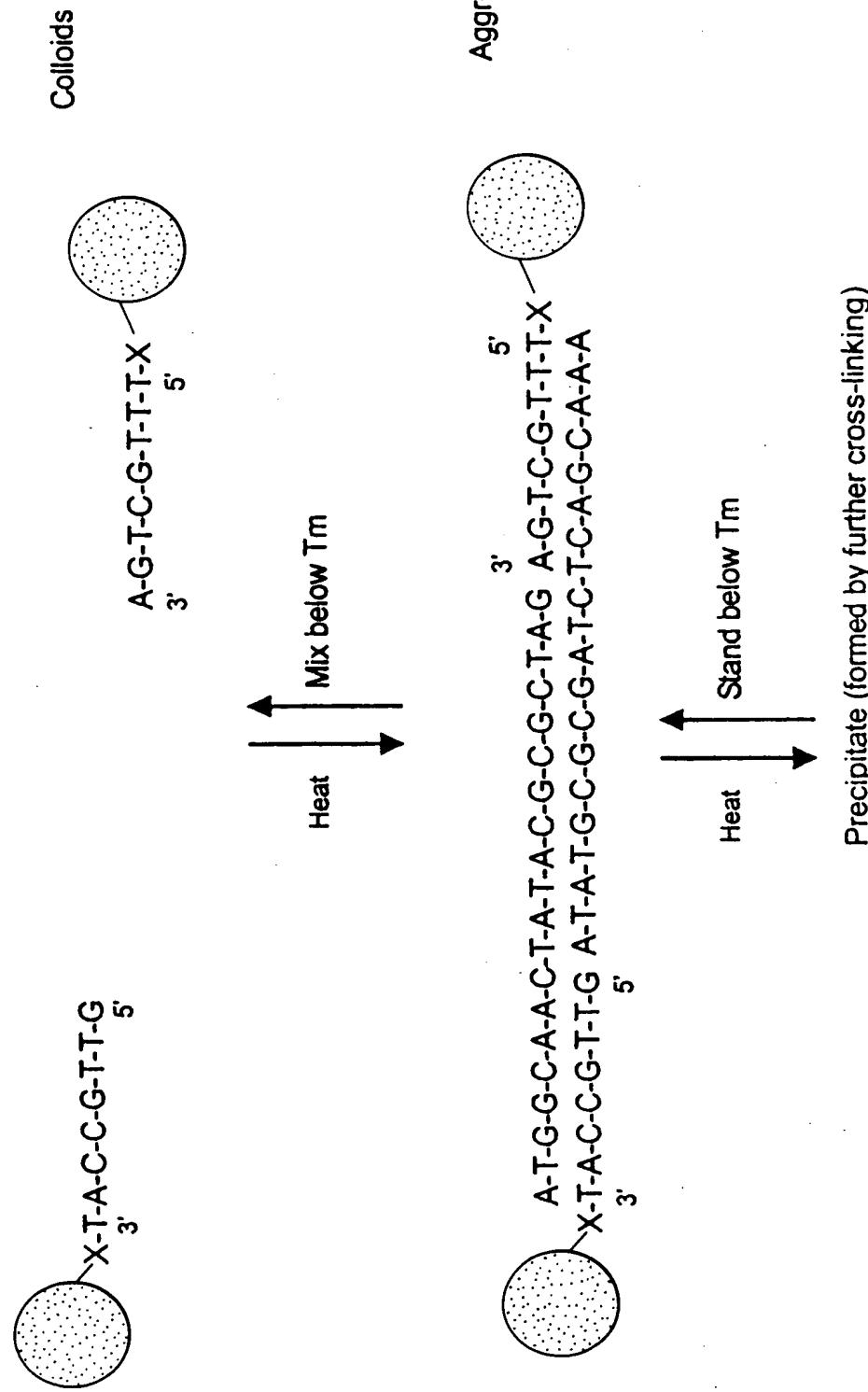
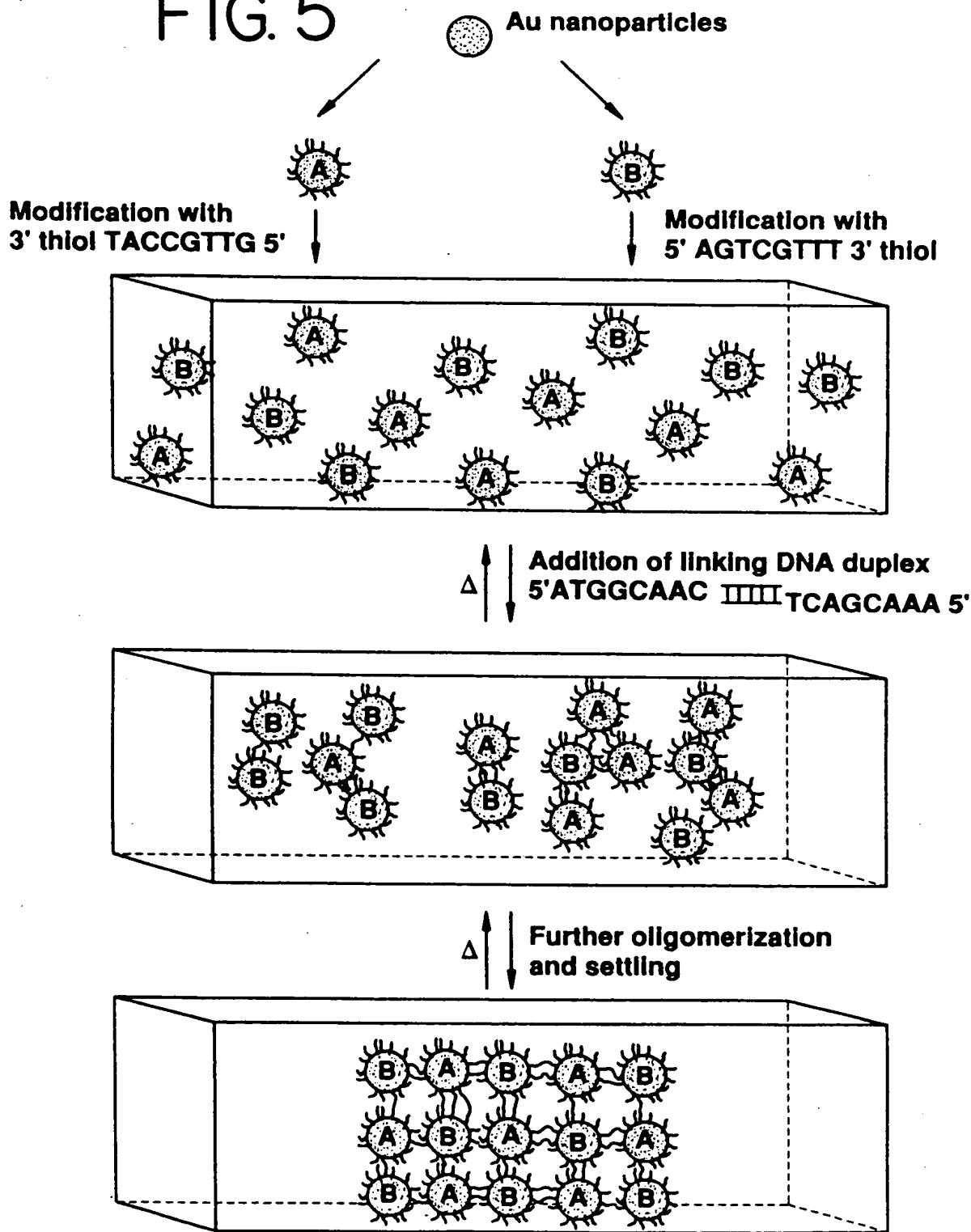
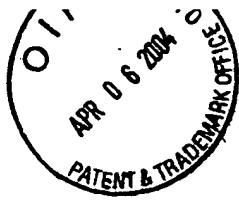


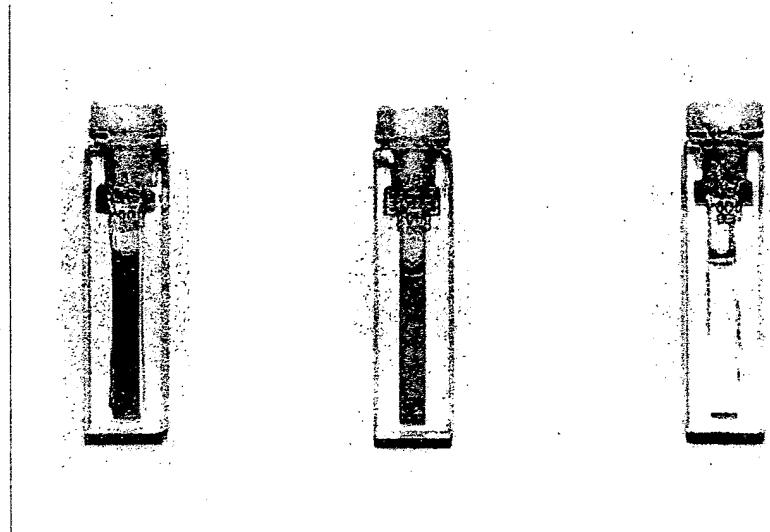
FIG. 5





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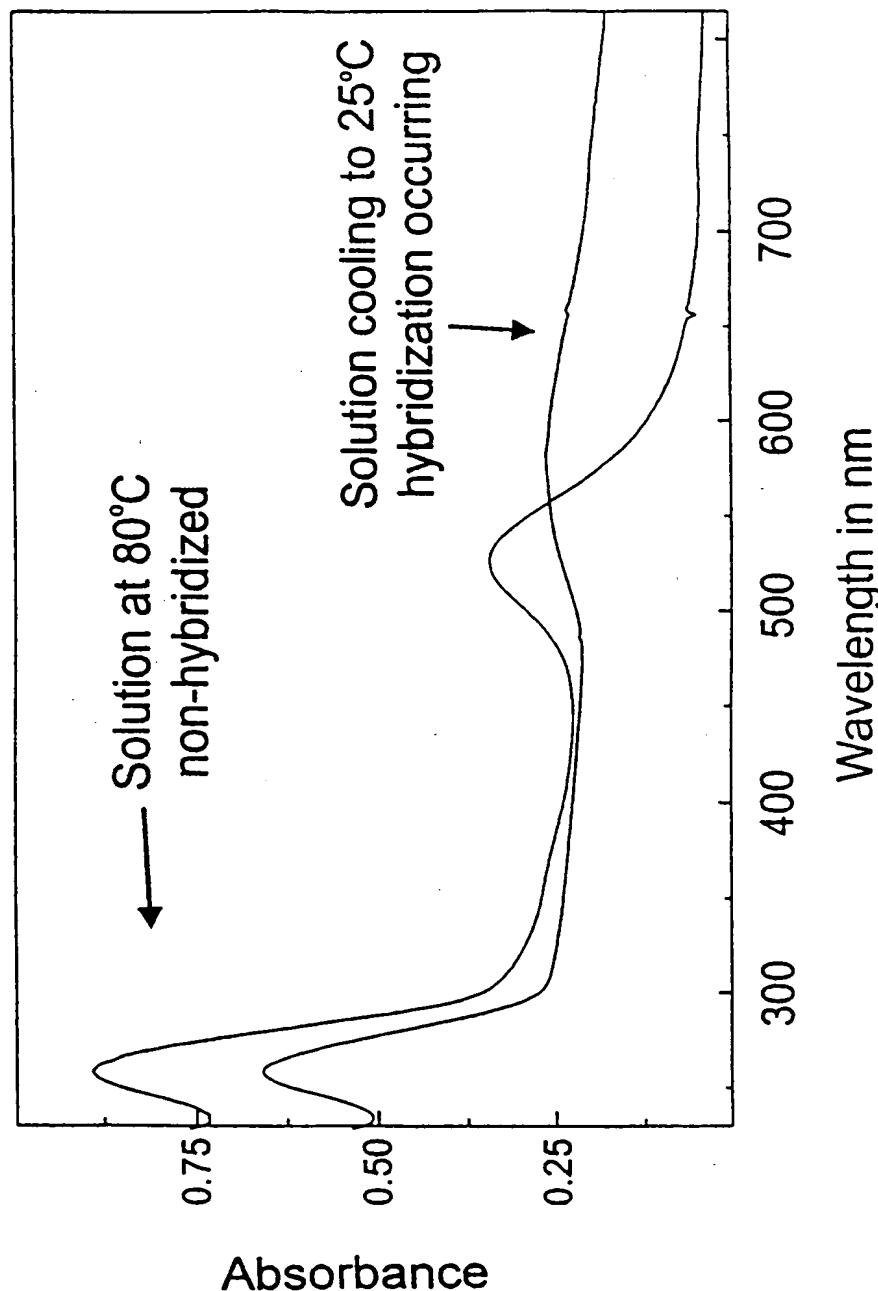
## FIG. 6A FIG. 6B FIG. 6C

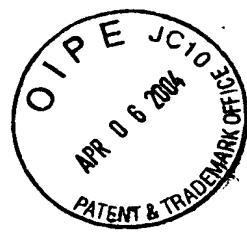




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FIG. 7





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FIG. 8B

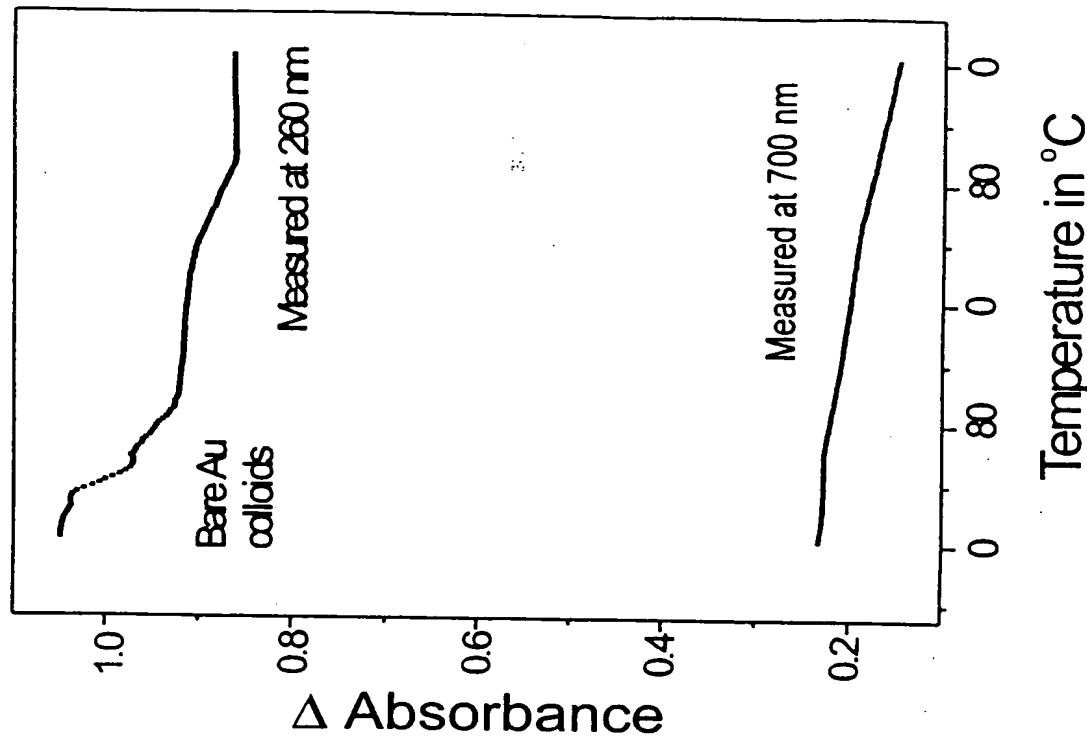
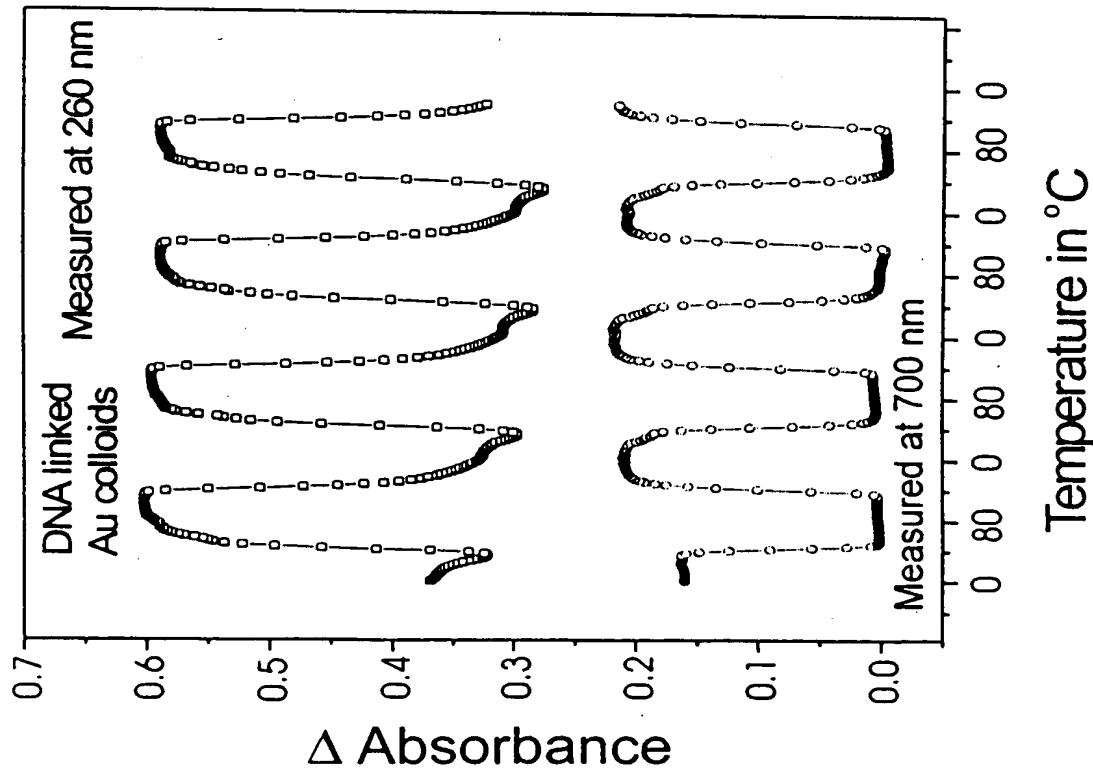


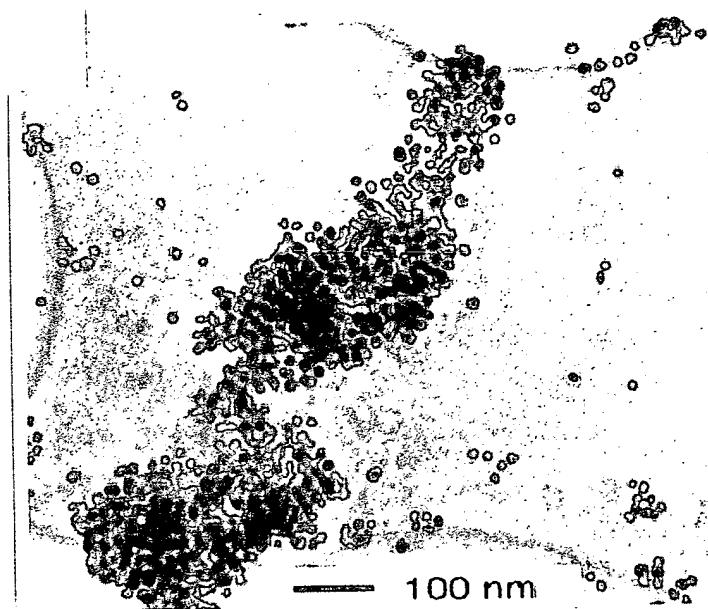
FIG. 8A



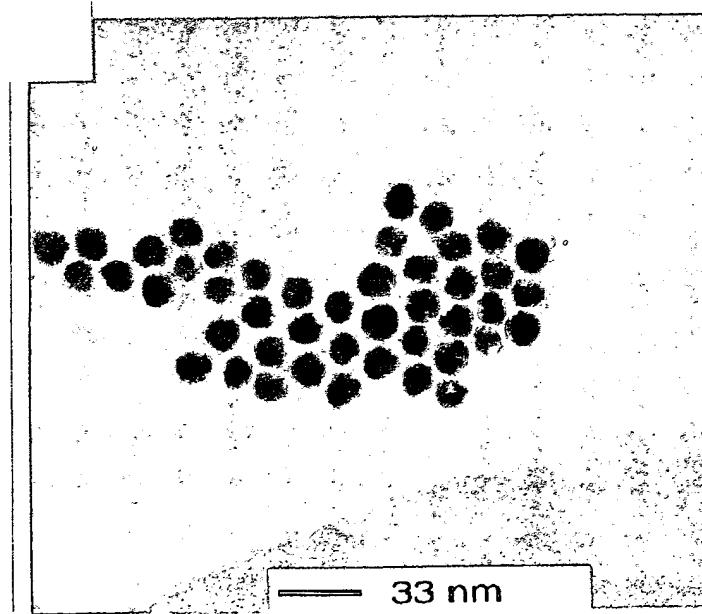
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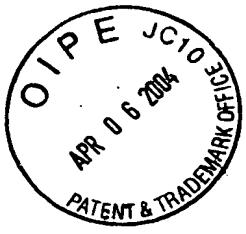
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**FIG. 9A**



**FIG. 9B**

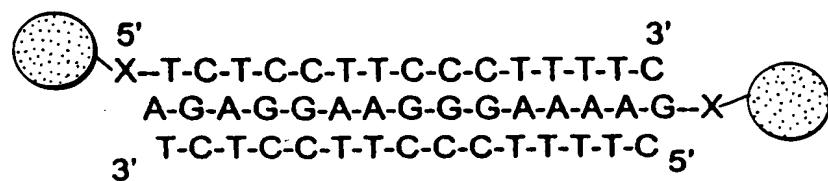
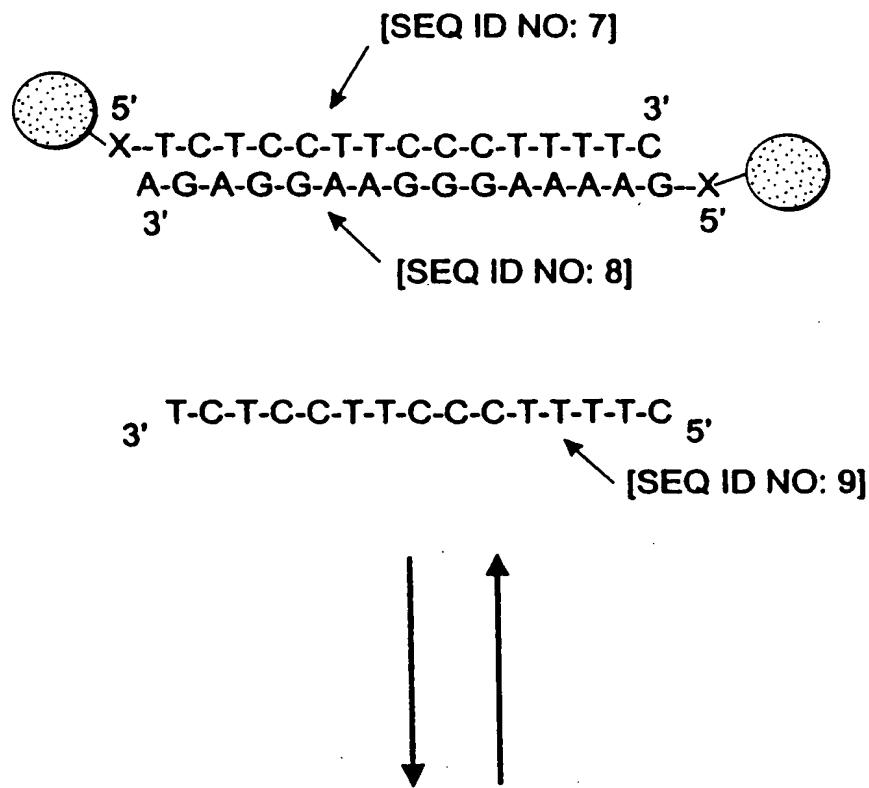


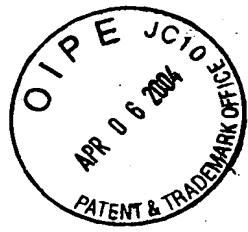


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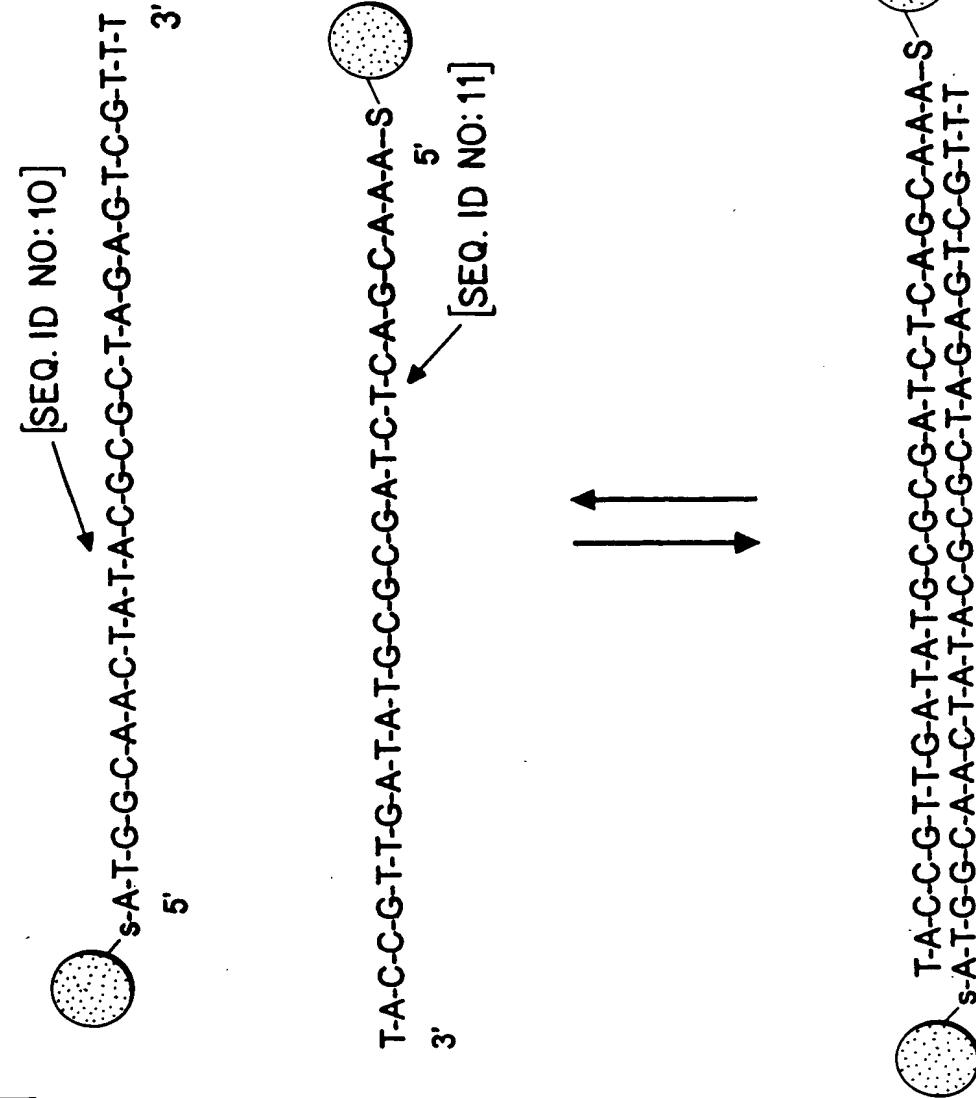
## FIG. 10

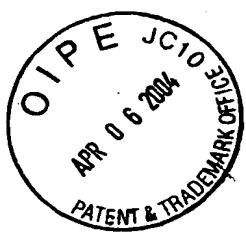




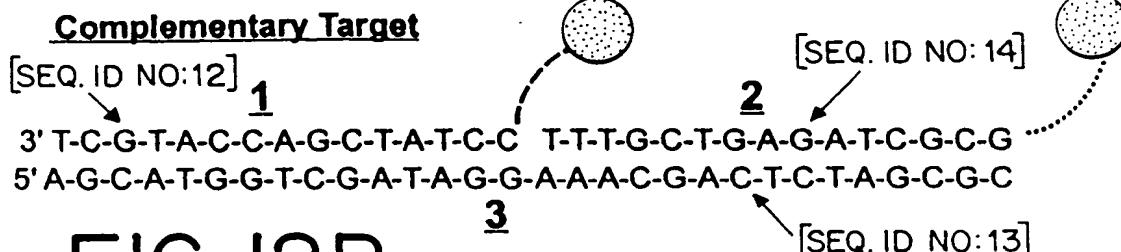
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# FIG. II

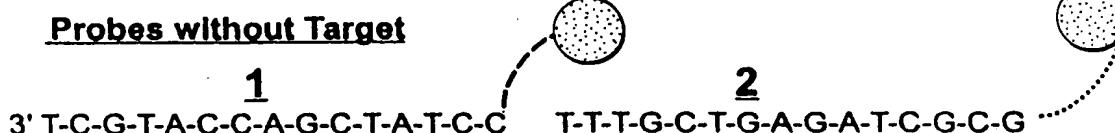




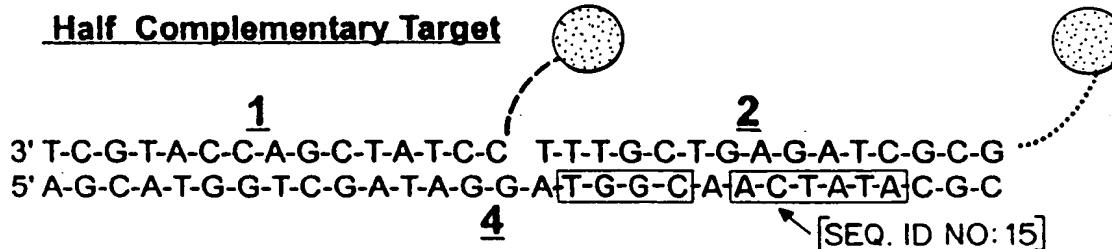
## FIG. 12A



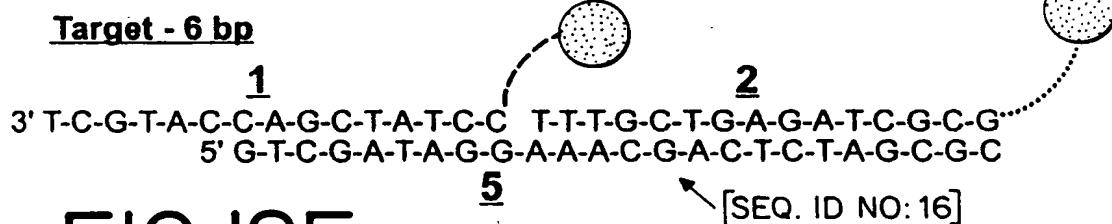
## FIG. 12B



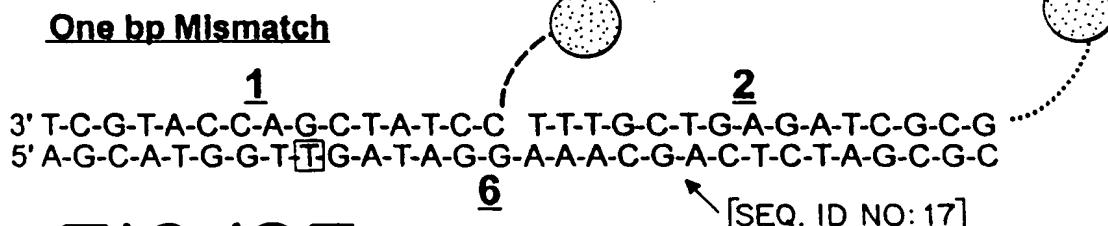
## FIG. 12C



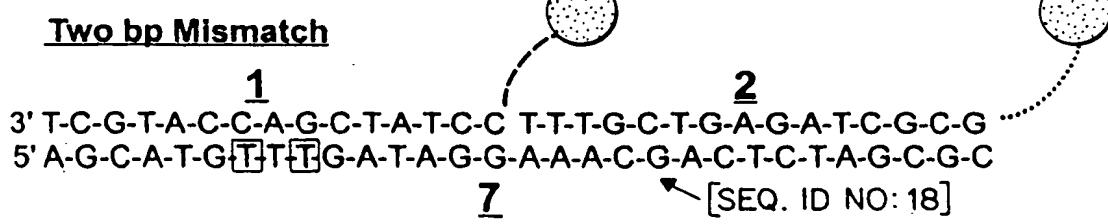
## FIG. 12D

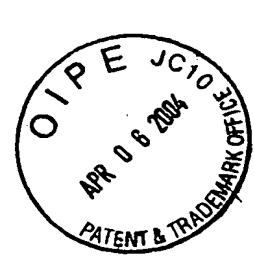


## FIG. 12E



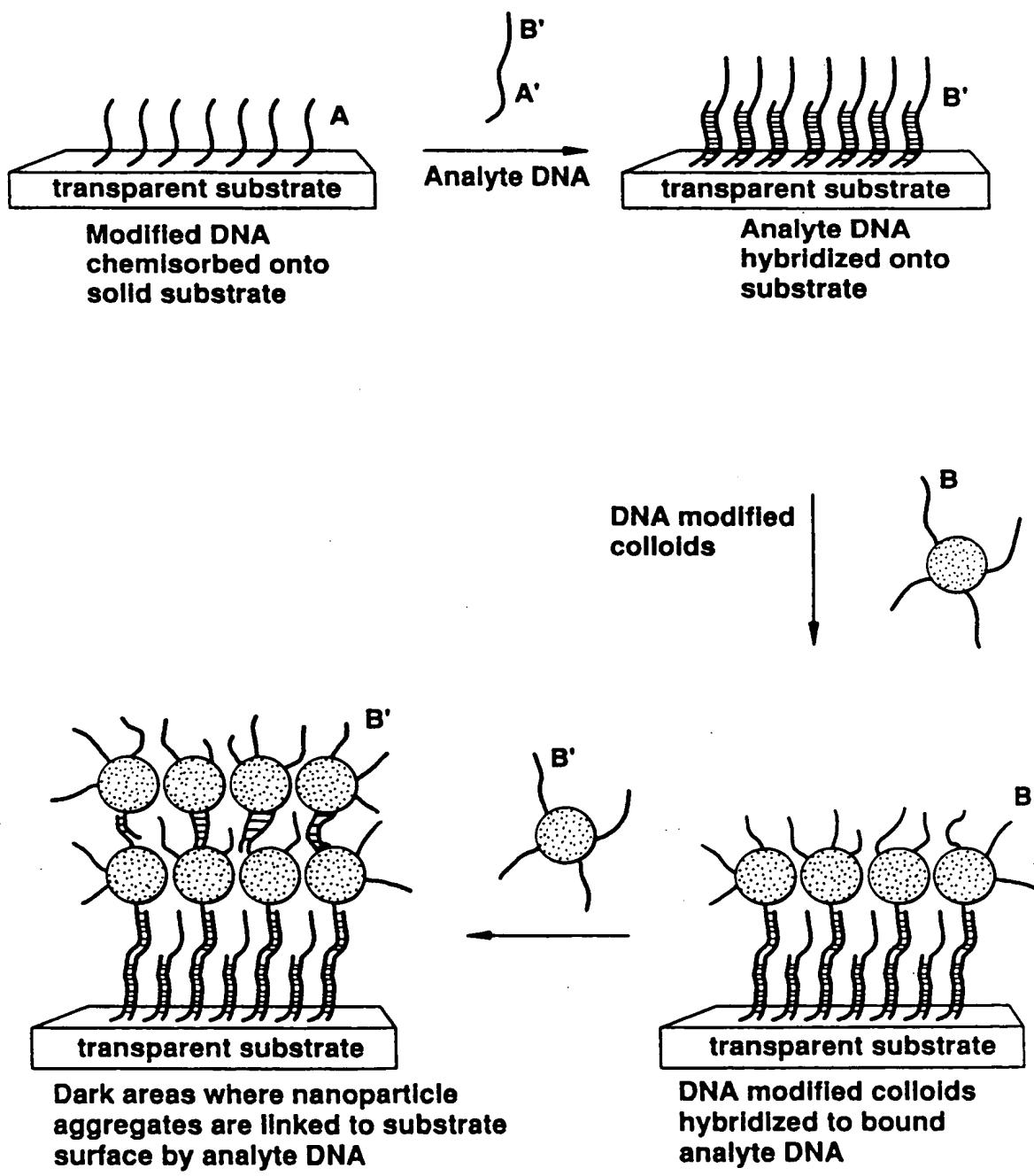
## FIG. 12F

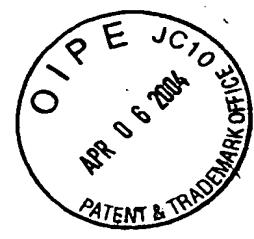




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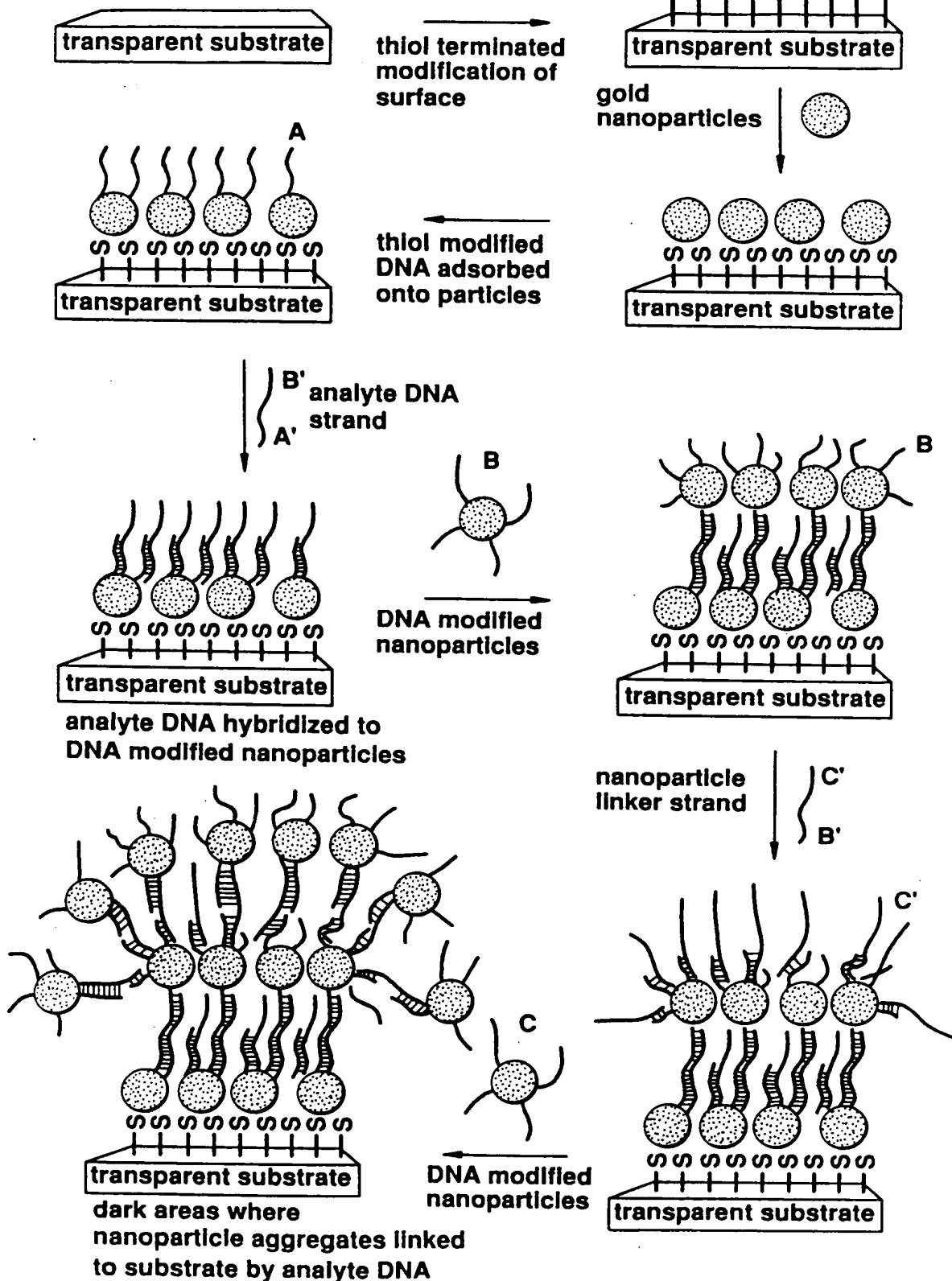
FIG. 13A





**FIG. 13B**

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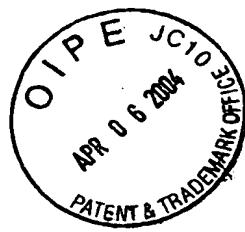


FIG. 14A

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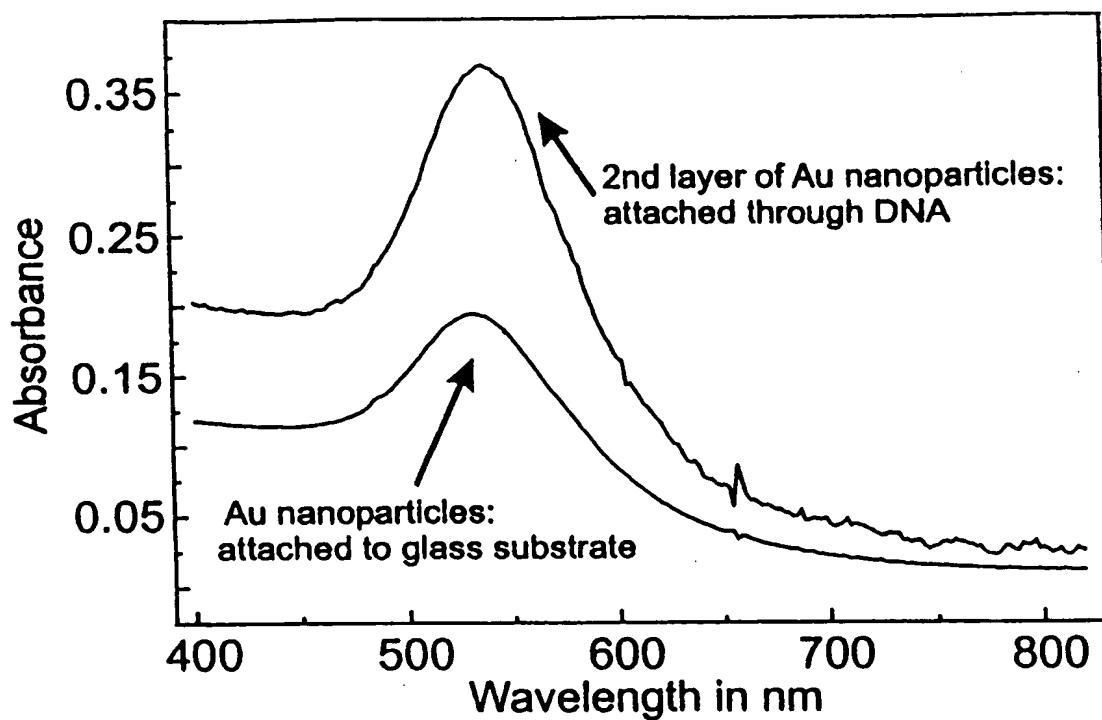
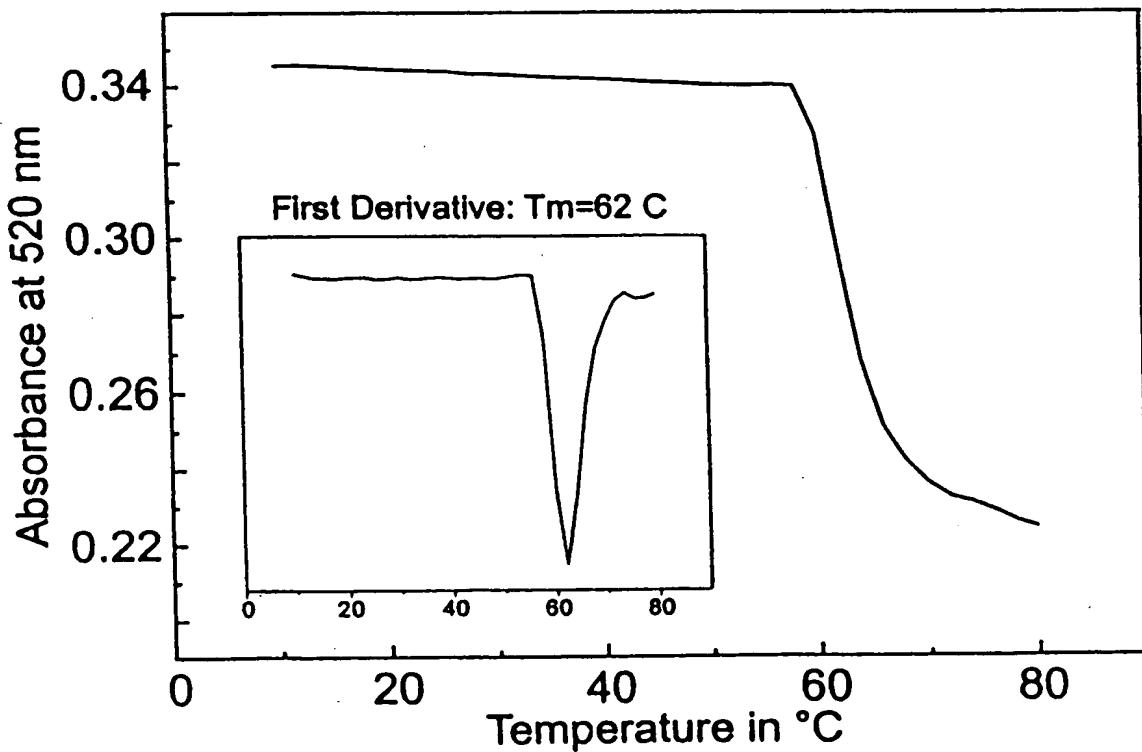
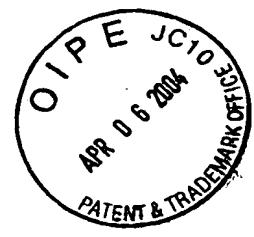


FIG. 14B





## FIG. 15A

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Probes with No Target

S-ATG-CTC-AAC-TCT      TAG-GAC-TTA-CGC-S  
1                          2

SEQ ID NO:19

SEQ ID NO:20

## FIG. 15B

Half-Complementary Target

5' TAC-GAG-TTG-AGA-GGA-GTC-CCA-CAT 3'  
S-ATG-CTC-AAC-TCT TAG-GAC-TTA-CGC-S

3

1

2

SEQ ID NO:21

## FIG. 15C

Complementary Target

Tm=53.5°C

4

5' TAC-GAG-TTG-AGA-ATC-CTG-AAT-GCG 3'

S-ATG-CTC-AAC-TCT TAG-GAC-TTA-CGC-S

1

2

SEQ ID NO:22

## FIG. 15D

ONE Base-Pair Mismatch at Probe Head

Tm=50.4°C

5

5' TAC-GAG-TTG-AGA-ATC-CTG-AAT-GCT 3'

S-ATG-CTC-AAC-TCT TAG-GAC-TTA-CGC-S

1

2

SEQ ID NO:23

## FIG. 15E

ONE Base-Pair Mismatch at Probe Tail

Tm=46.2°C

6

5' TAC-GAG-TTG-AGA-CTC-CTG-AAT-GCG 3'

S-ATG-CTC-AAC-TCT TAG-GAC-TTA-CGC-S

1

2

SEQ ID NO:24

## FIG. 15F

ONE Base Deletion

Tm=51.6°C

7

5' TAC-GAG-TTG-AGA-ATC-CTG-AAT-GC□ 3'

S-ATG-CTC-AAC-TCT TAG-GAC-TTA-CGC-S

1

2

SEQ ID NO:25

## FIG. 15G

ONE Base-Pair Insertion

Tm=50.2°C

8

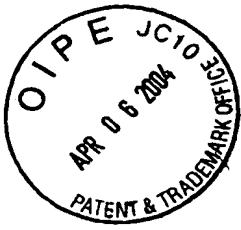
5' TAC-GAG-TTG-AGA-CAT-CCT-GAA-TGC-G 3'

S-ATG-CTC-AAC-TCT TA-GGA-CTT-ACG-C-S

1

2

SEQ ID NO:26



## FIG. 16A

### 24 Base Template

5' TAC-GAG-TTG-AGA-ATC-CTG-AAT-GCG 3'  
—S-ATG-CTC-AAC-TCT TAG-GAC-TTA-CGC-S —  
1  
2

## FIG. 16B

### 48 Base Template with Complementary 24 Base Filler

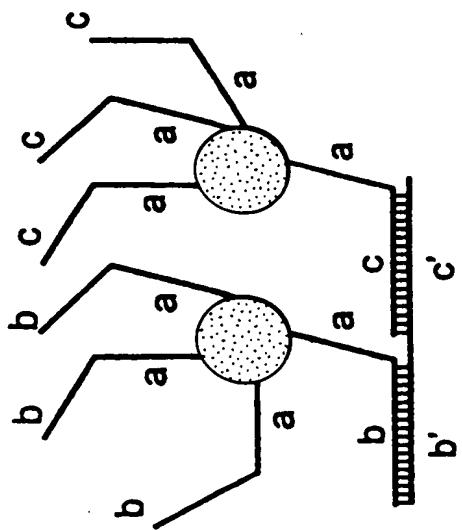
5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-ATC-CTG-AAT-GCG 3'  
—S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT TAG-GAC-TTA-CGC-S —  
1  
2

## FIG. 16C

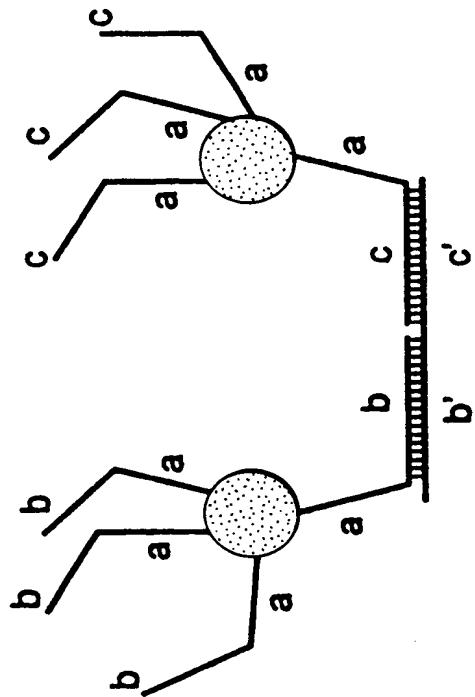
### 72 Base Template with Complementary 48 Base Filler

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-TAT-ATT-GGA-CGG-TTT-ACG-GAC-AAC-ATC-CTG-AAT-GCG 3'  
—S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT-ATA-TAA-CCT-GCG-AAA-TGC-CTG-TTG TAG-GAC-TTA-CGC-S —  
1  
2

**FIG. 17A**



**FIG. 17B**



**FIG. 17C**

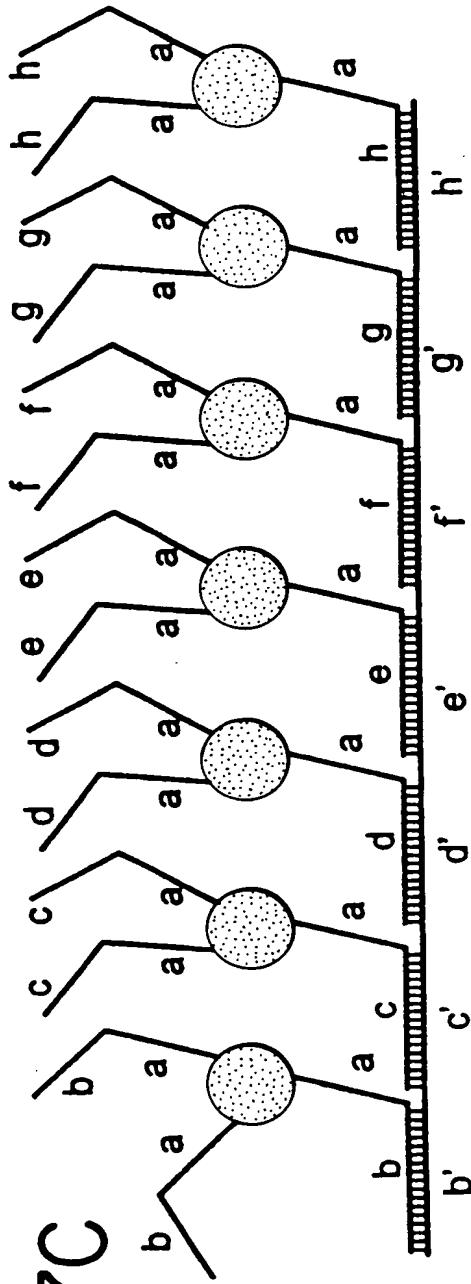


FIG. 17D

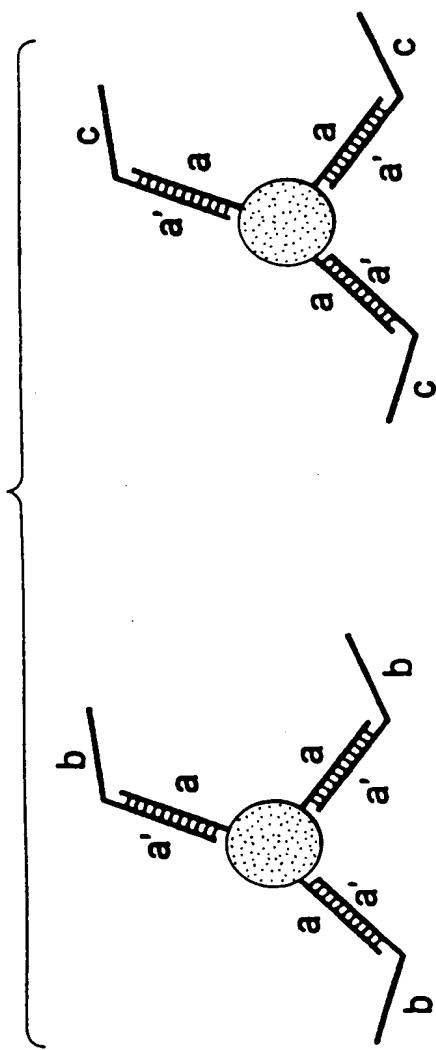
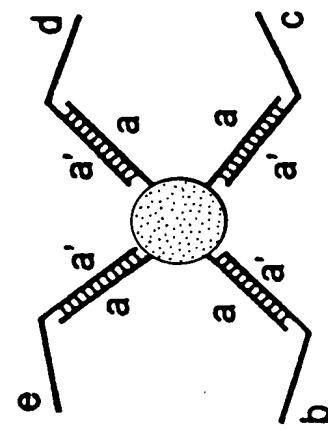


FIG. 17E



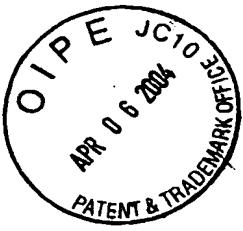
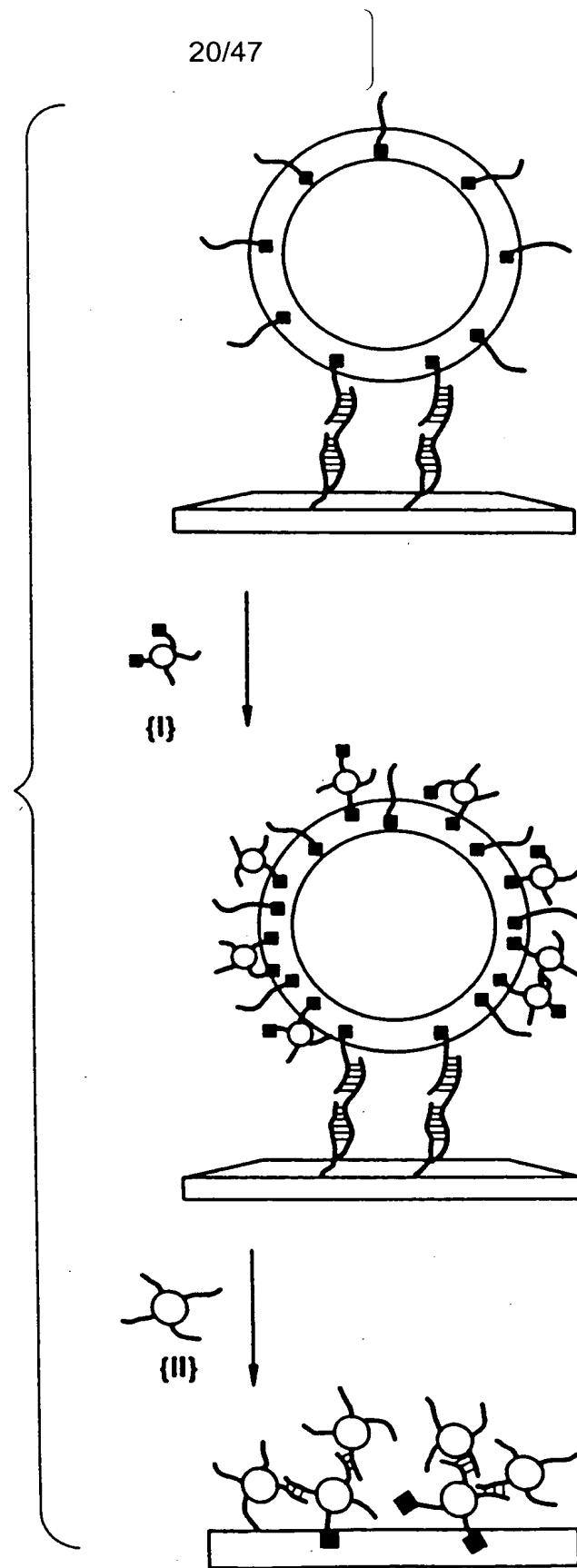


FIG. 18



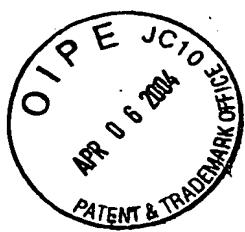


FIG. 19A

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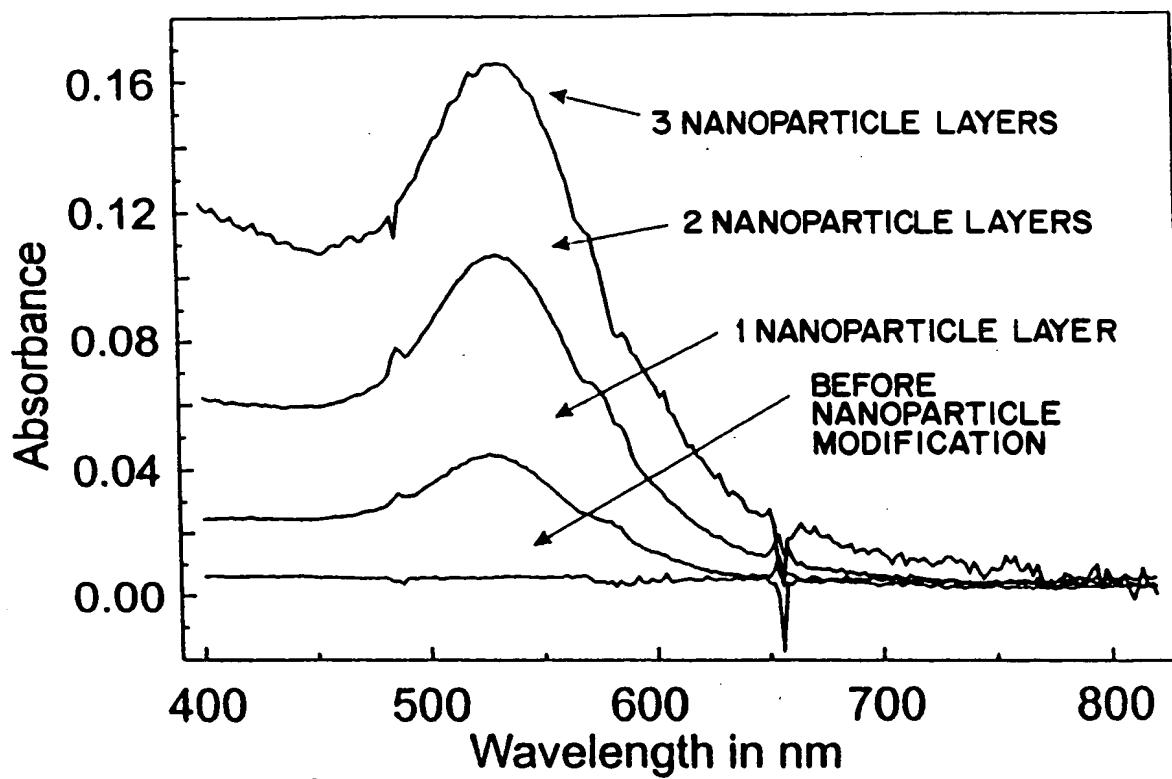


FIG. 19B

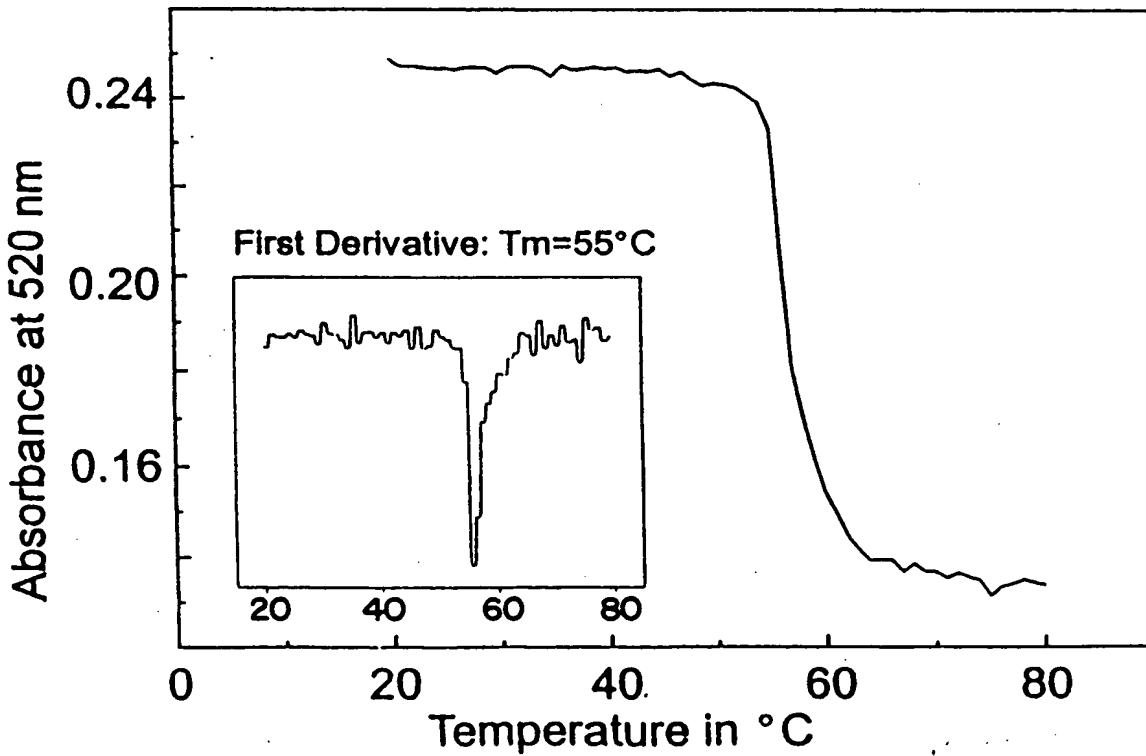


FIG. 20A

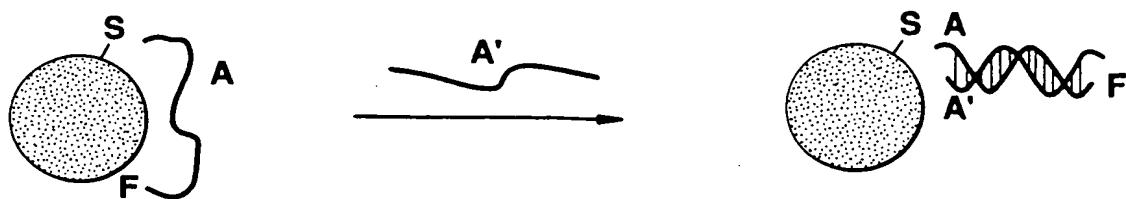
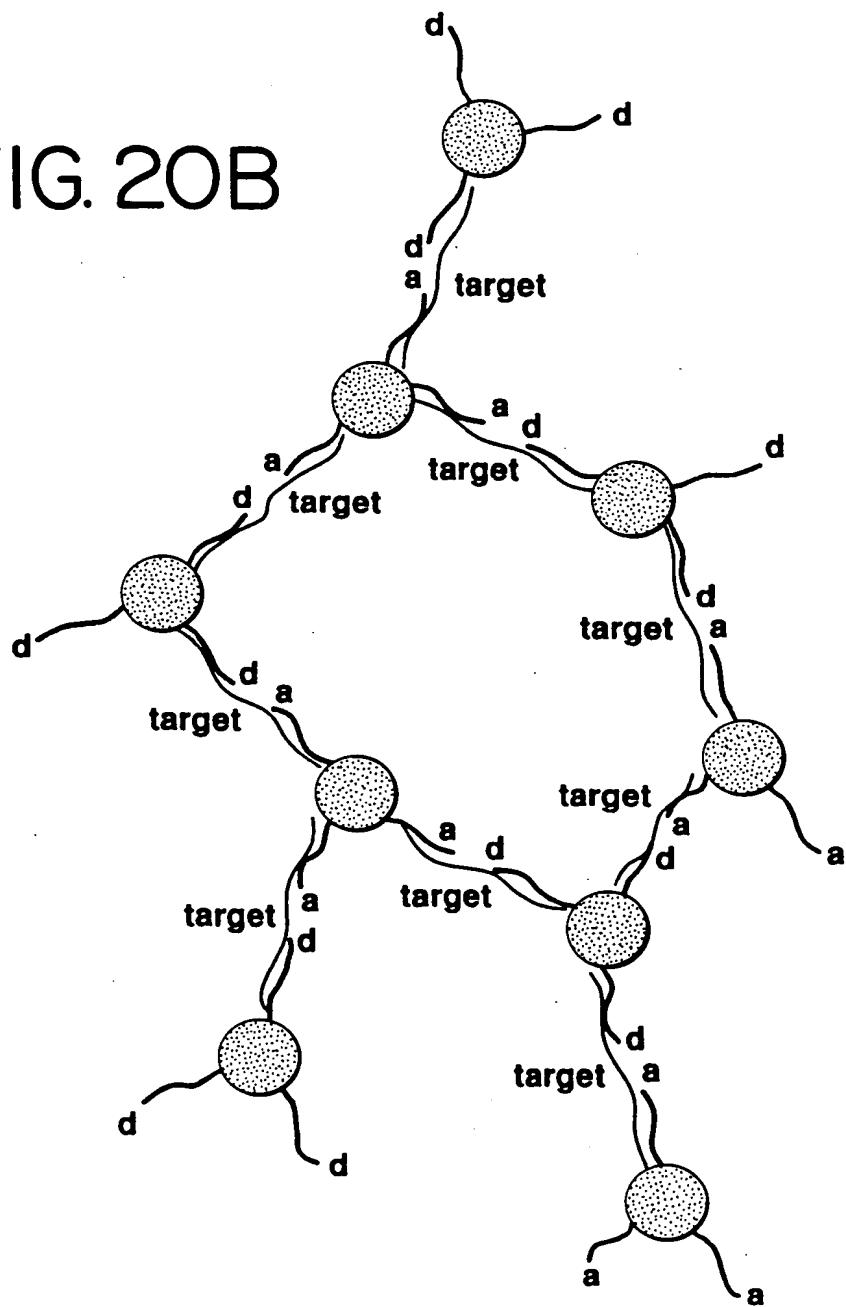


FIG. 20B



# FIG. 2I

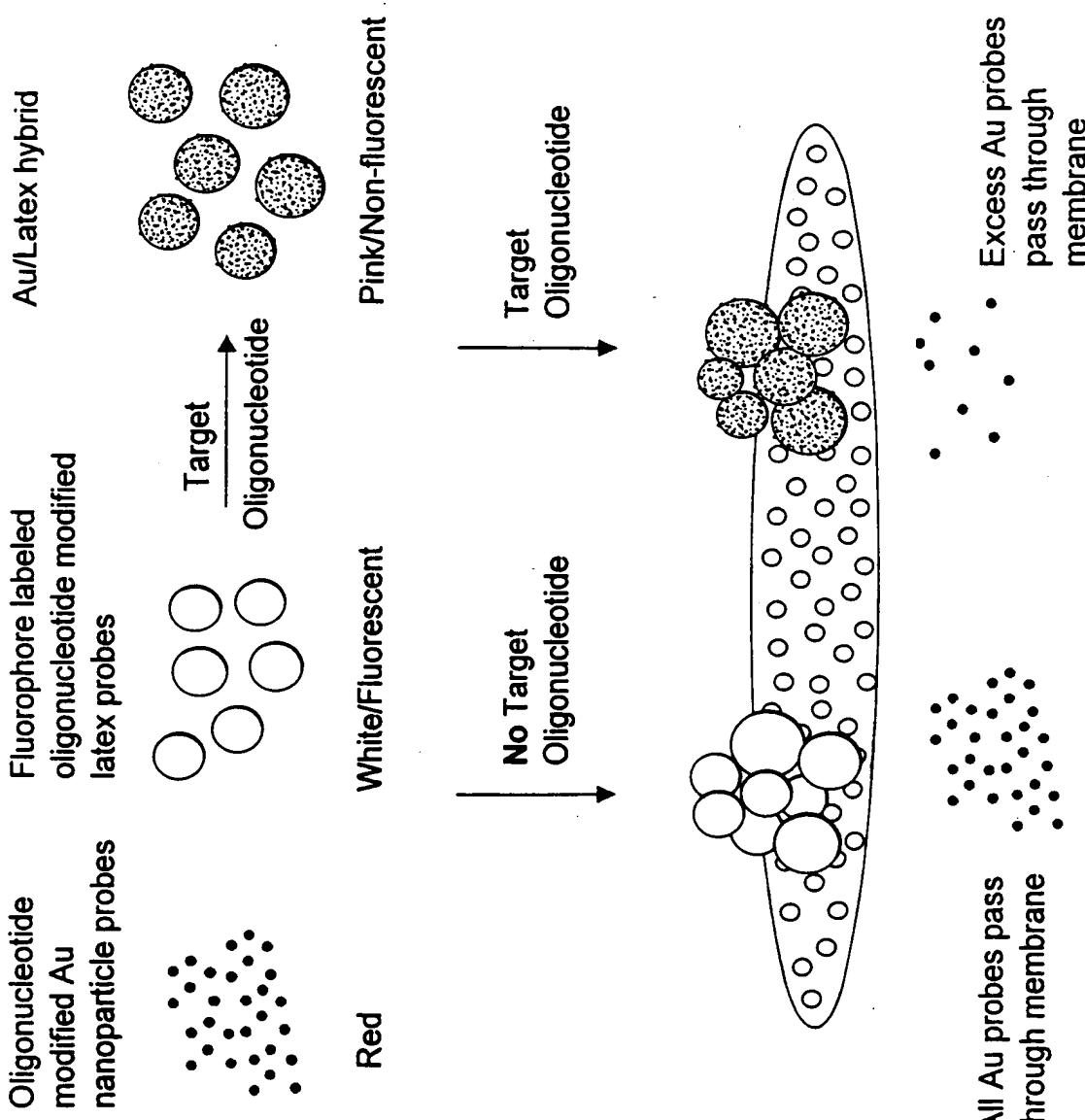
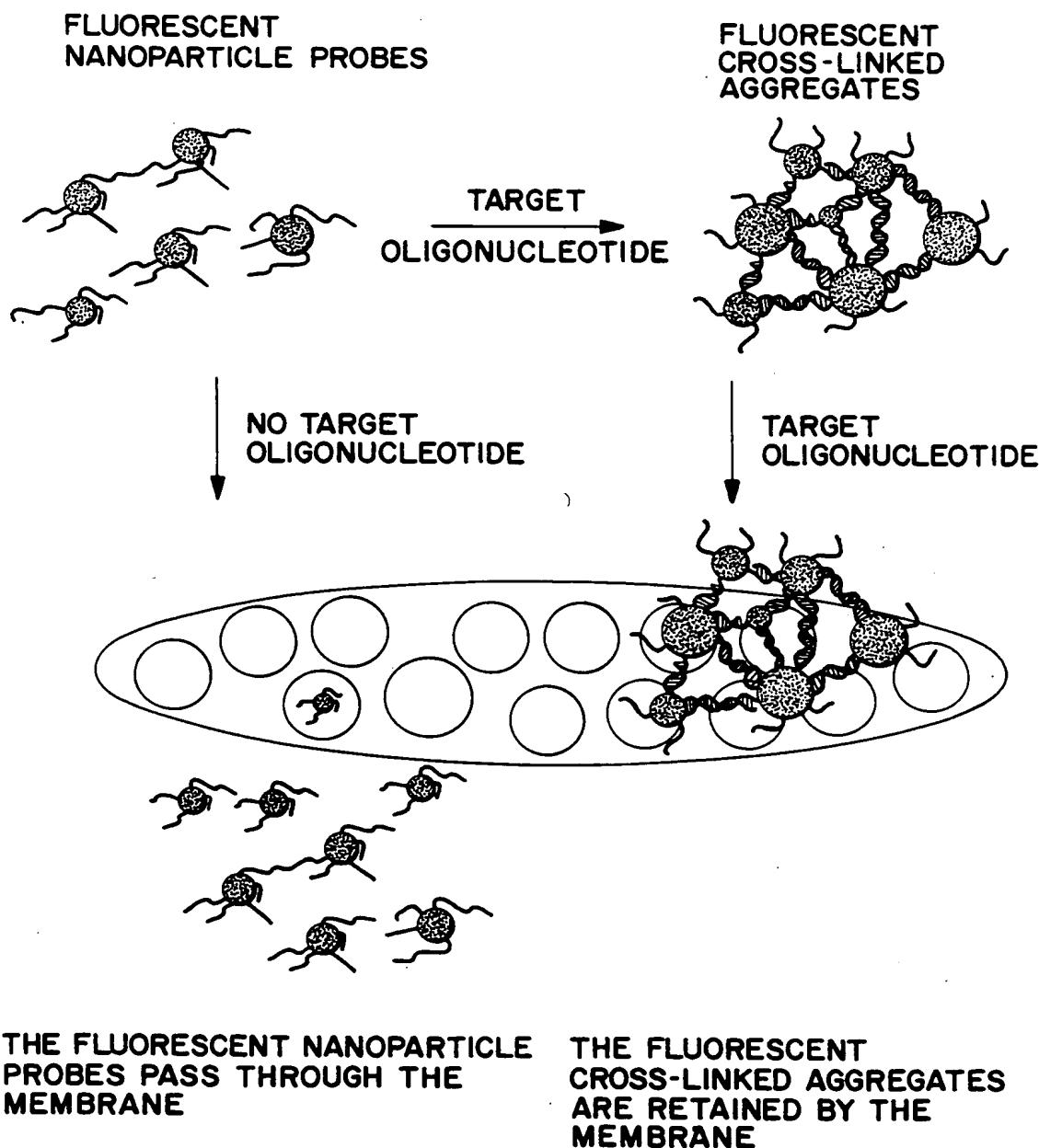


FIG. 22





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}

# FIG. 23

## Anthrax PCR Product

5'G GCG GAT GAG TCA GTA GTT AAG GAG GCT CAT AGA GAA GTA ATT AAT  
3'C CGC CTA CTC AGT CAT CAA TTC CTC CGA GTA TCT CTT CAT TAA TTA

TCG TCA ACA GAG GGA TTA TTG TTA AAT ATT GAT AAG GAT ATA AGA AAA  
AGC AGT TGT CTC CCT AAT AAC AAT TTA TAA CTA TTC CTA TAT TCT TTT

ATA TTA TCC AGG GTT ATA TTG TAG AAA TTG AAG ATA CTG AAG GGC TT 3'  
TAT AAT AGG TCC CAA TAT AAC ATC TTT AAC TTC TAT GAC TTC CCG AA 5'

**141 mer Anthrax PCR product [SEQ ID NO:36]**

3' CTC CCT AAT AAC AAT

[SEQ ID NO:37]

3' TTA TAA CTA TTC CTA

[SEQ ID NO:38]

## Blocker Oligonucleotides

3' C CGC CTA CTC AGT CAT CAA TTC CTC CGA GT  
3' A TCT CTT CAT TAA TTA AGC AGT TGT  
3' TAT TCT TTT TAT AAT AGG TCC CAA TAT  
3' AAC ATC TTT AAC TTC TAT GAC TTC CCG AA

[SEQ ID NO:39]  
[SEQ ID NO:40]  
[SEQ ID NO:41]  
[SEQ ID NO:42]

## Oligonucleotide-Nanoparticle Probes

FIG. 24

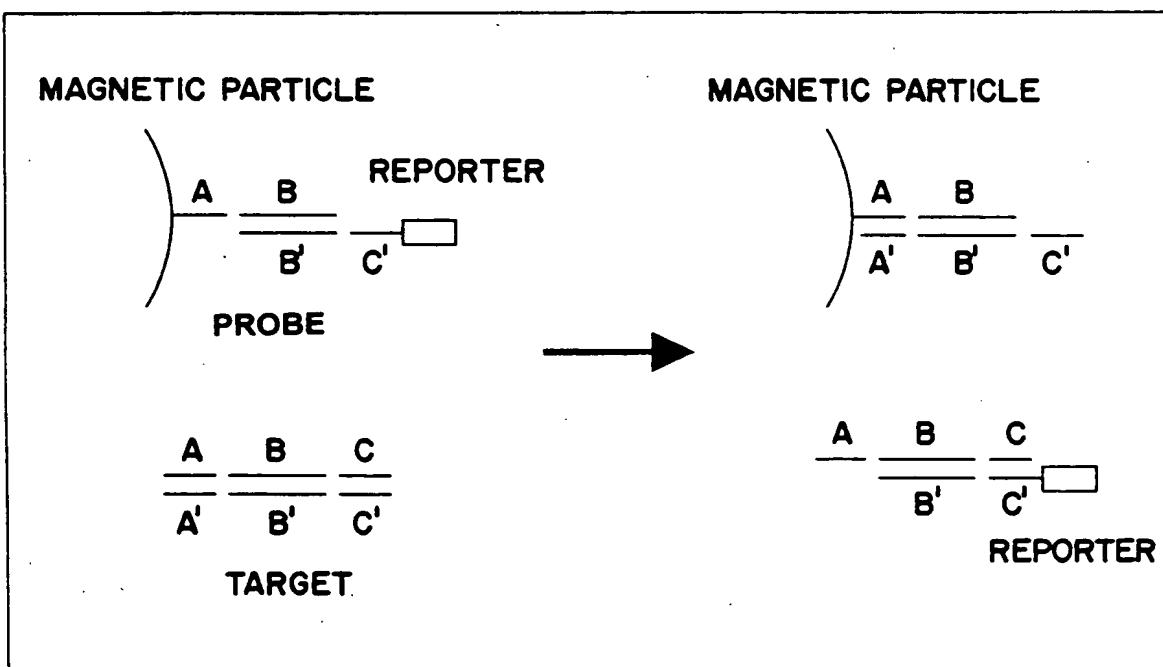
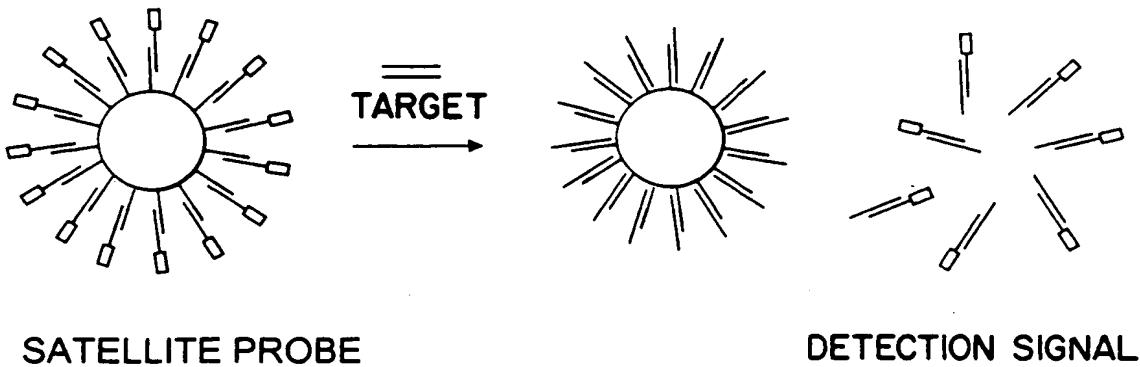


FIG. 25A

1. ~~~ (TARGET)

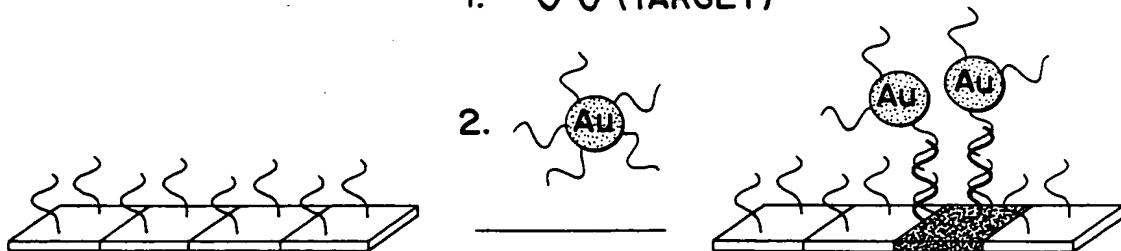
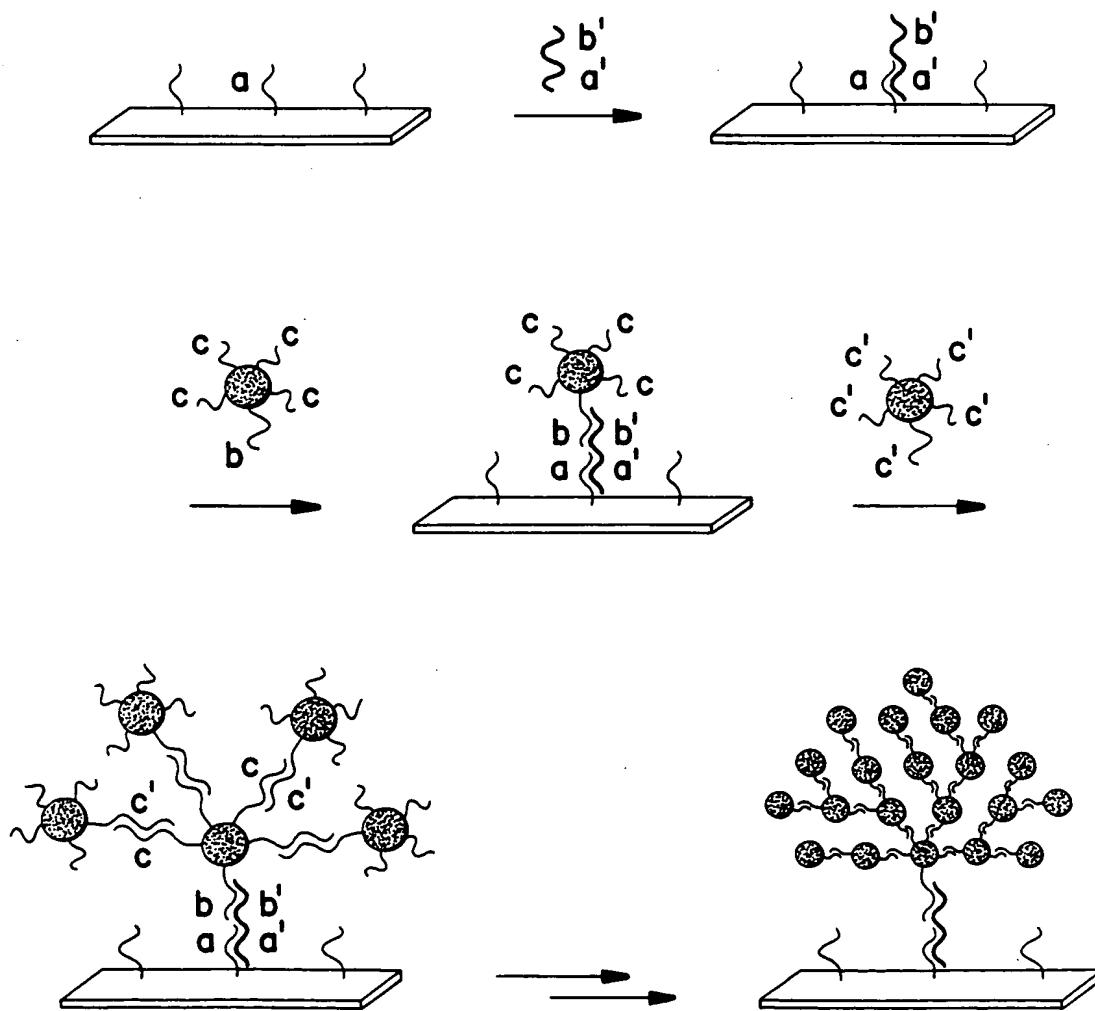
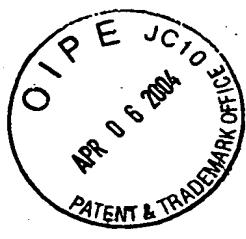


FIG. 25B





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FIG. 26A

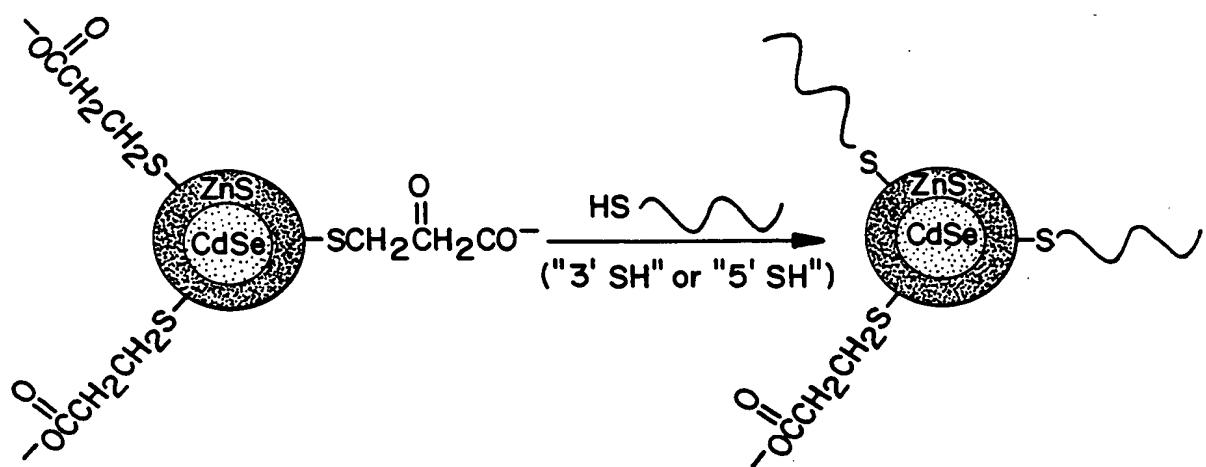
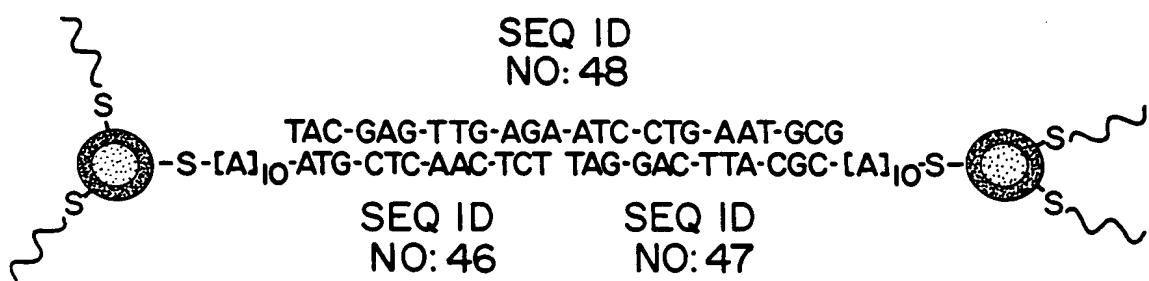
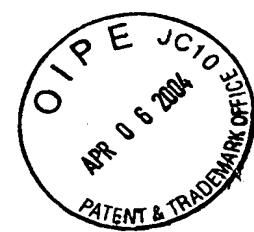


FIG. 26B





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FIG. 27A

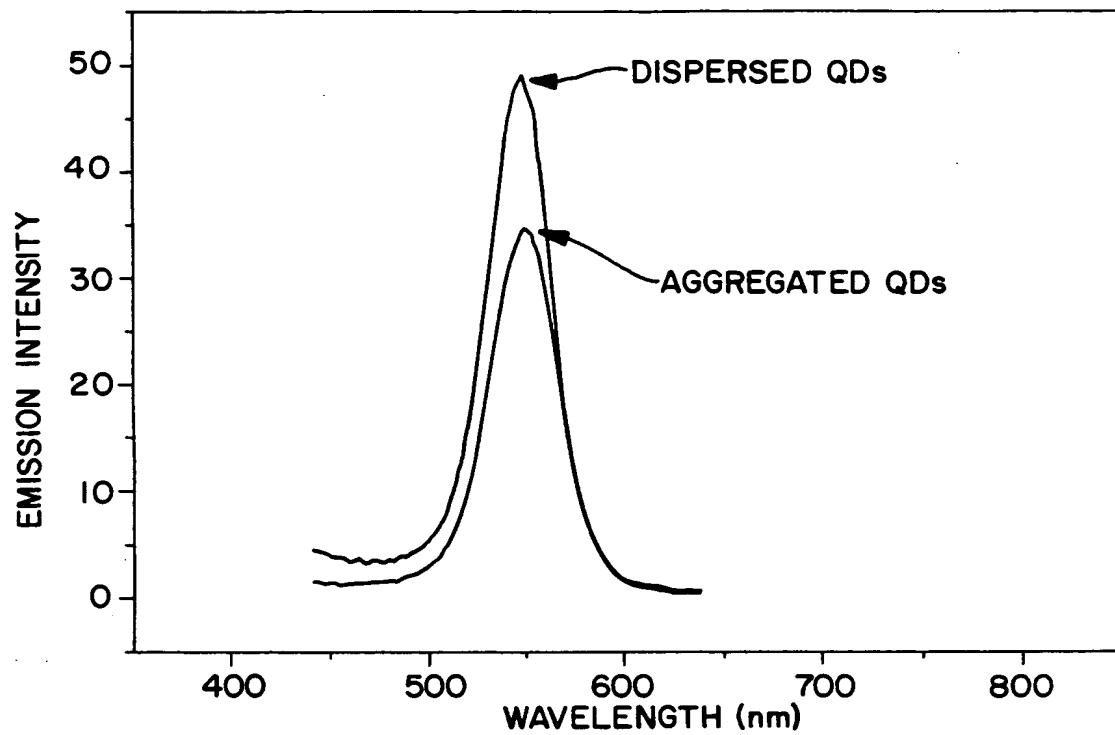


FIG. 27B

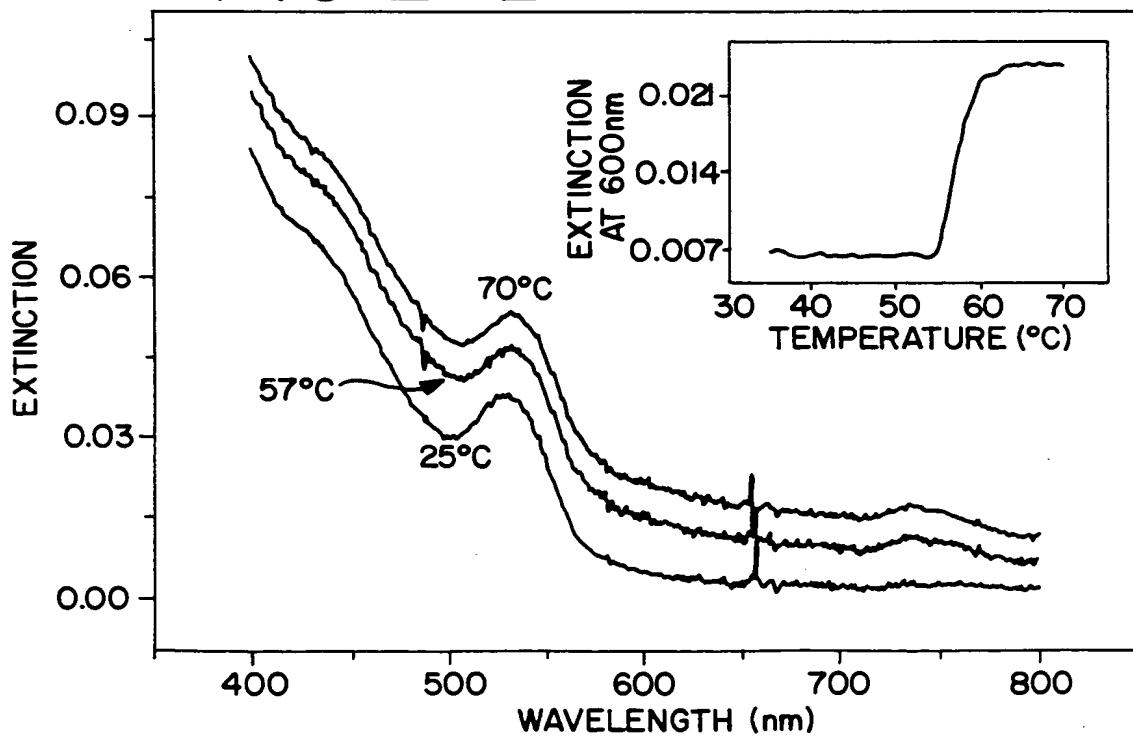


FIG. 27C

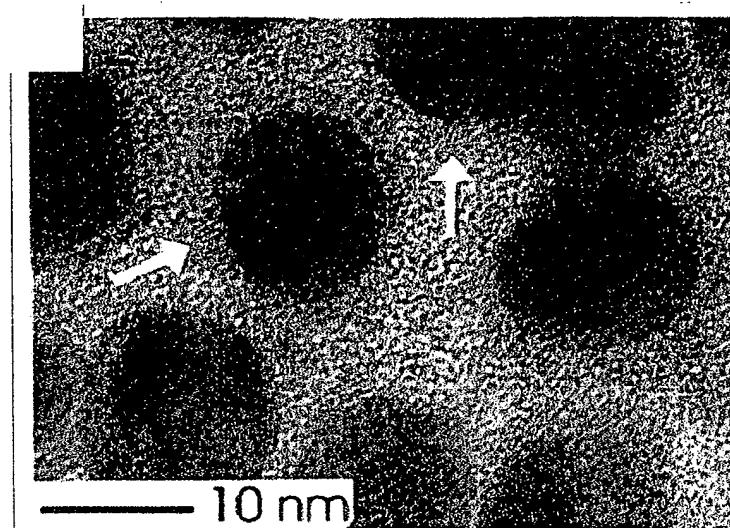
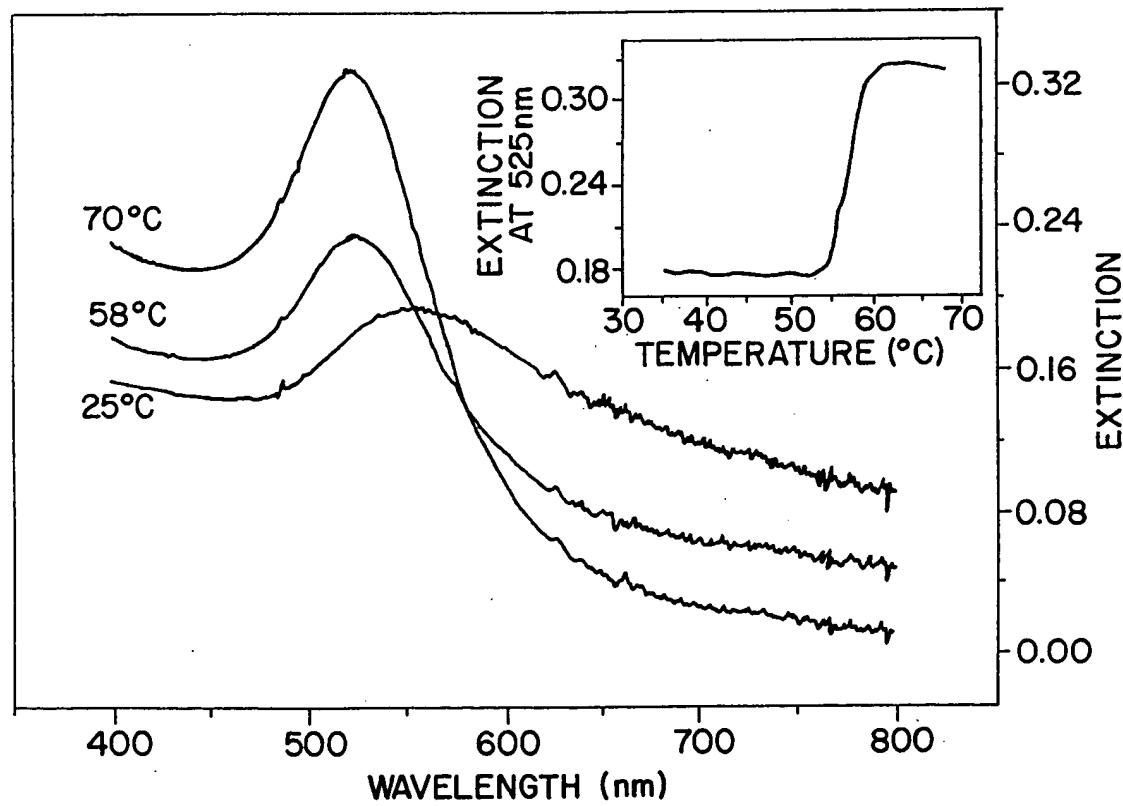
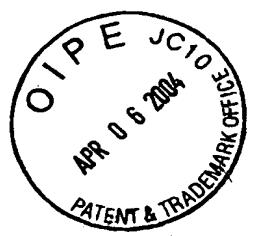


FIG. 27D

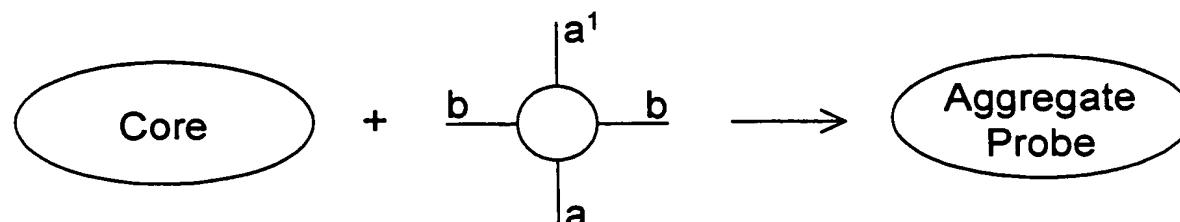
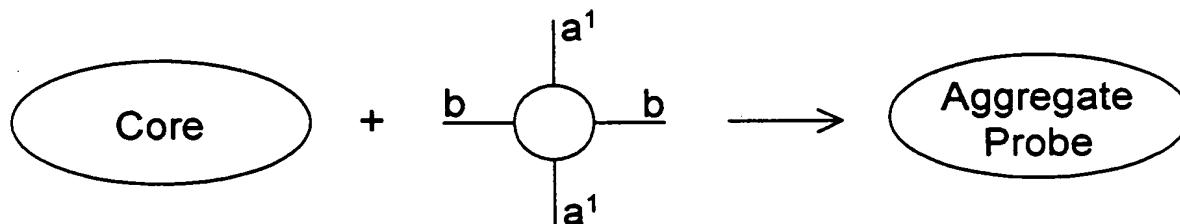
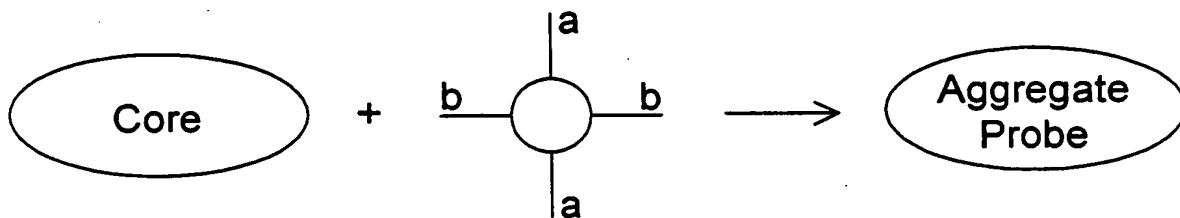
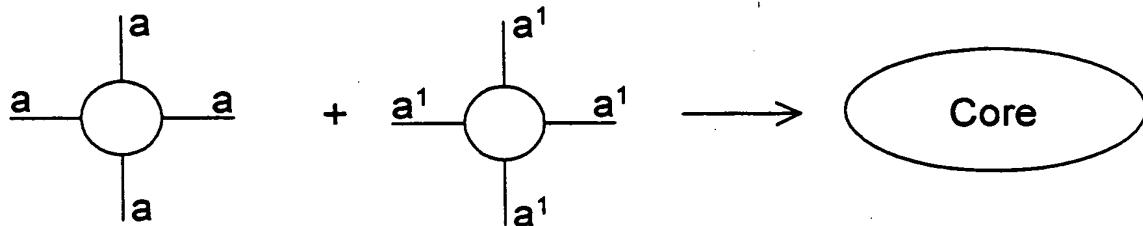


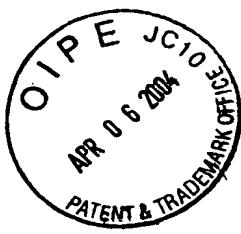


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}

## FIG. 28A





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FIG. 28B

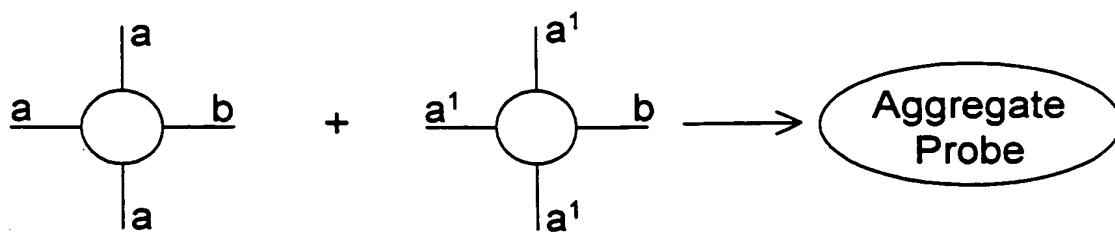


FIG. 28C

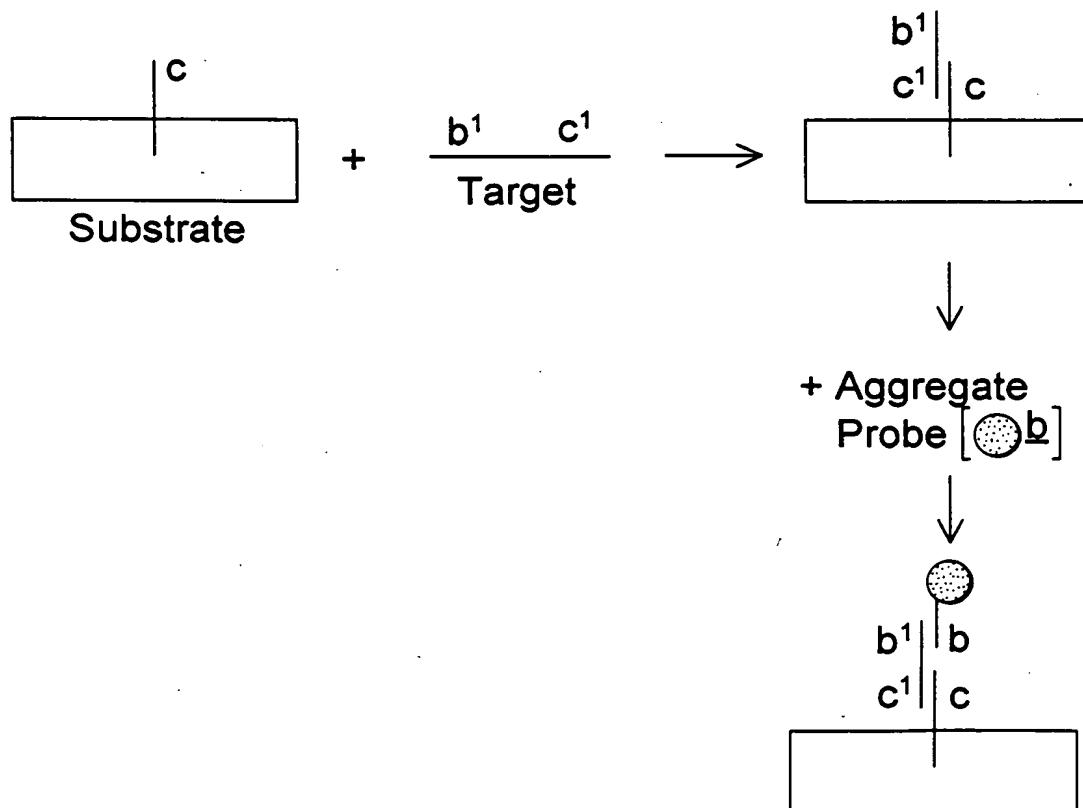


FIG. 28D

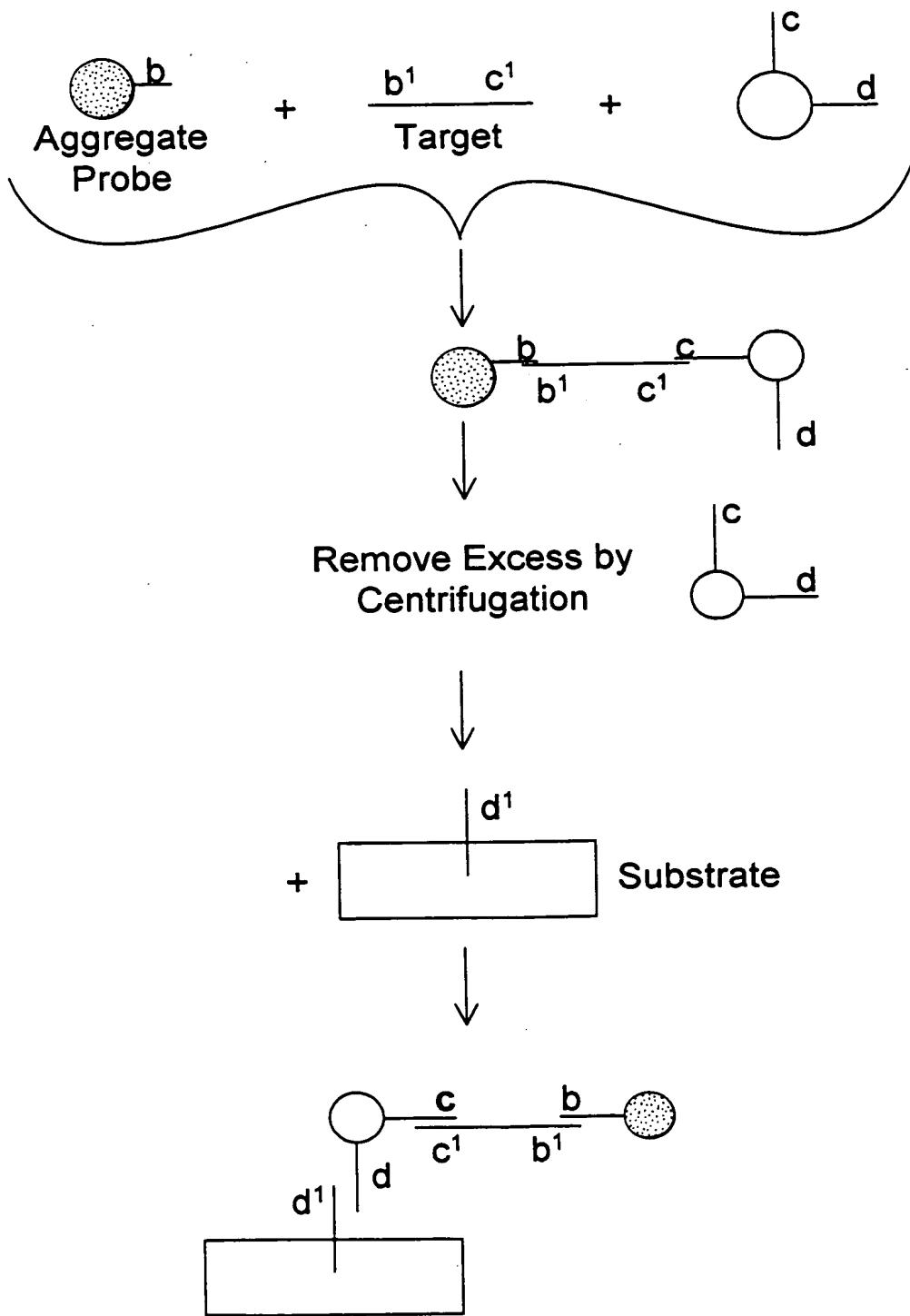
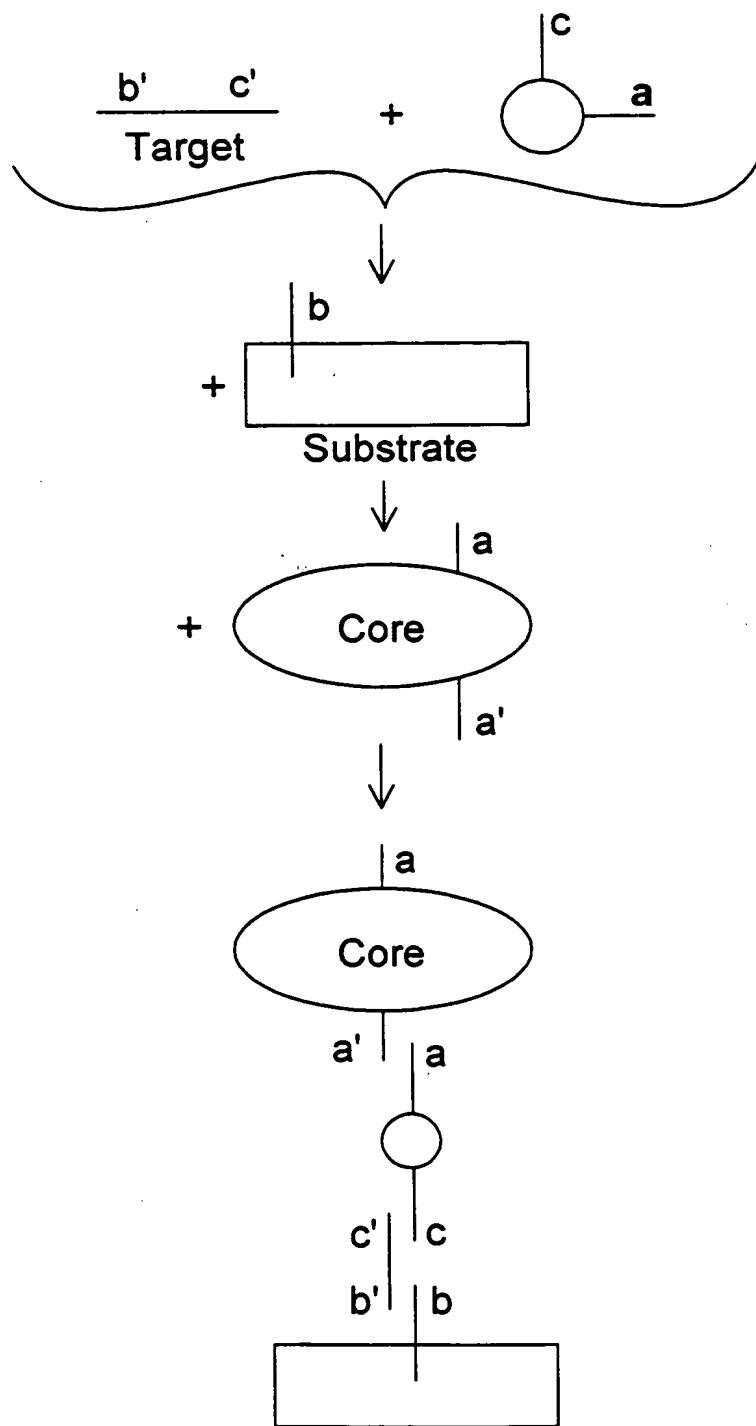
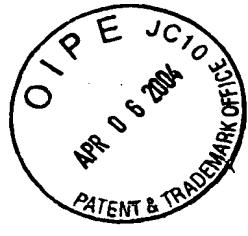
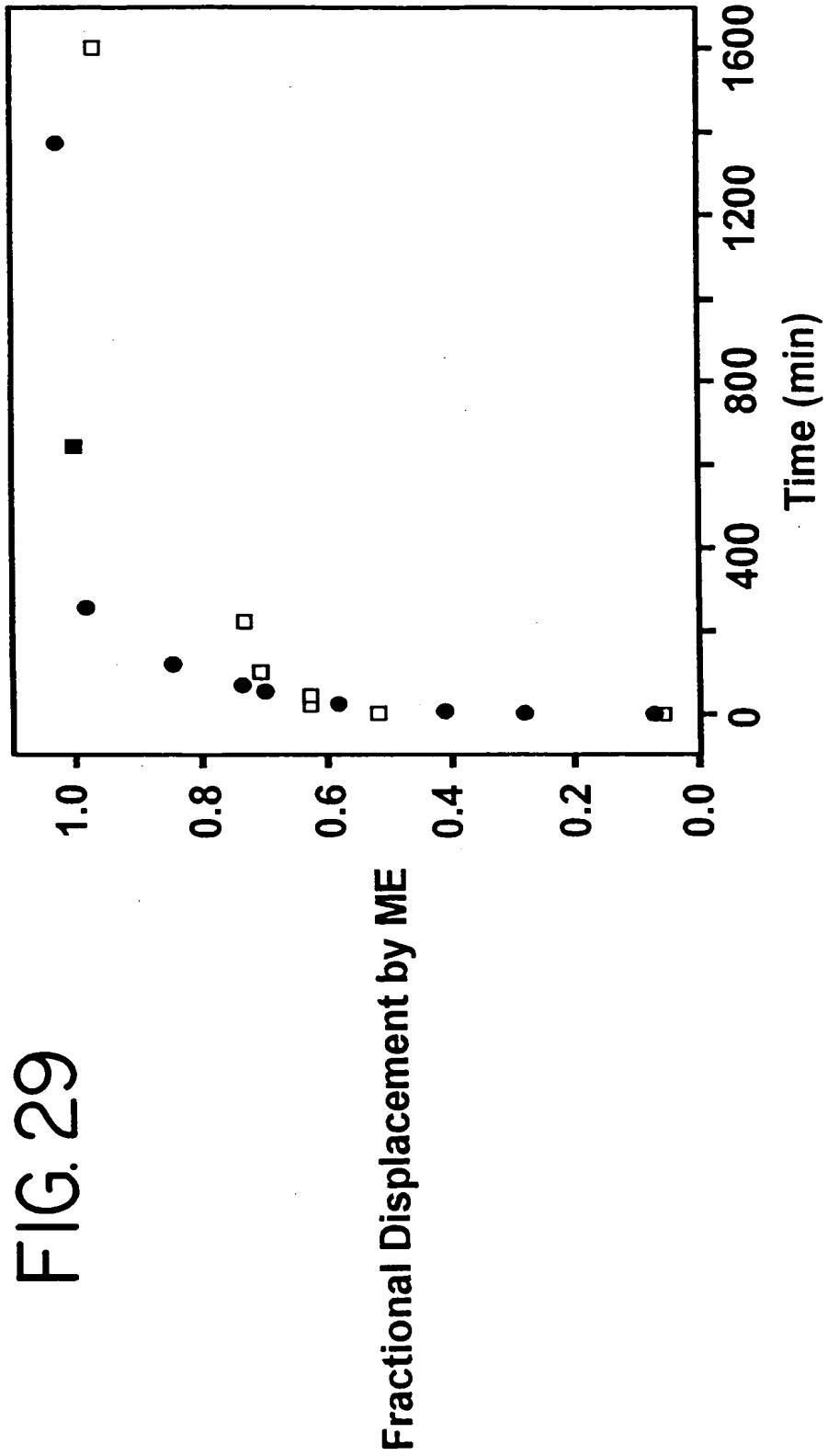


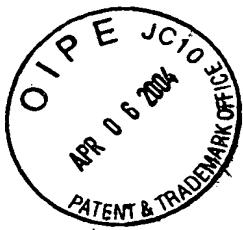
FIG. 28E





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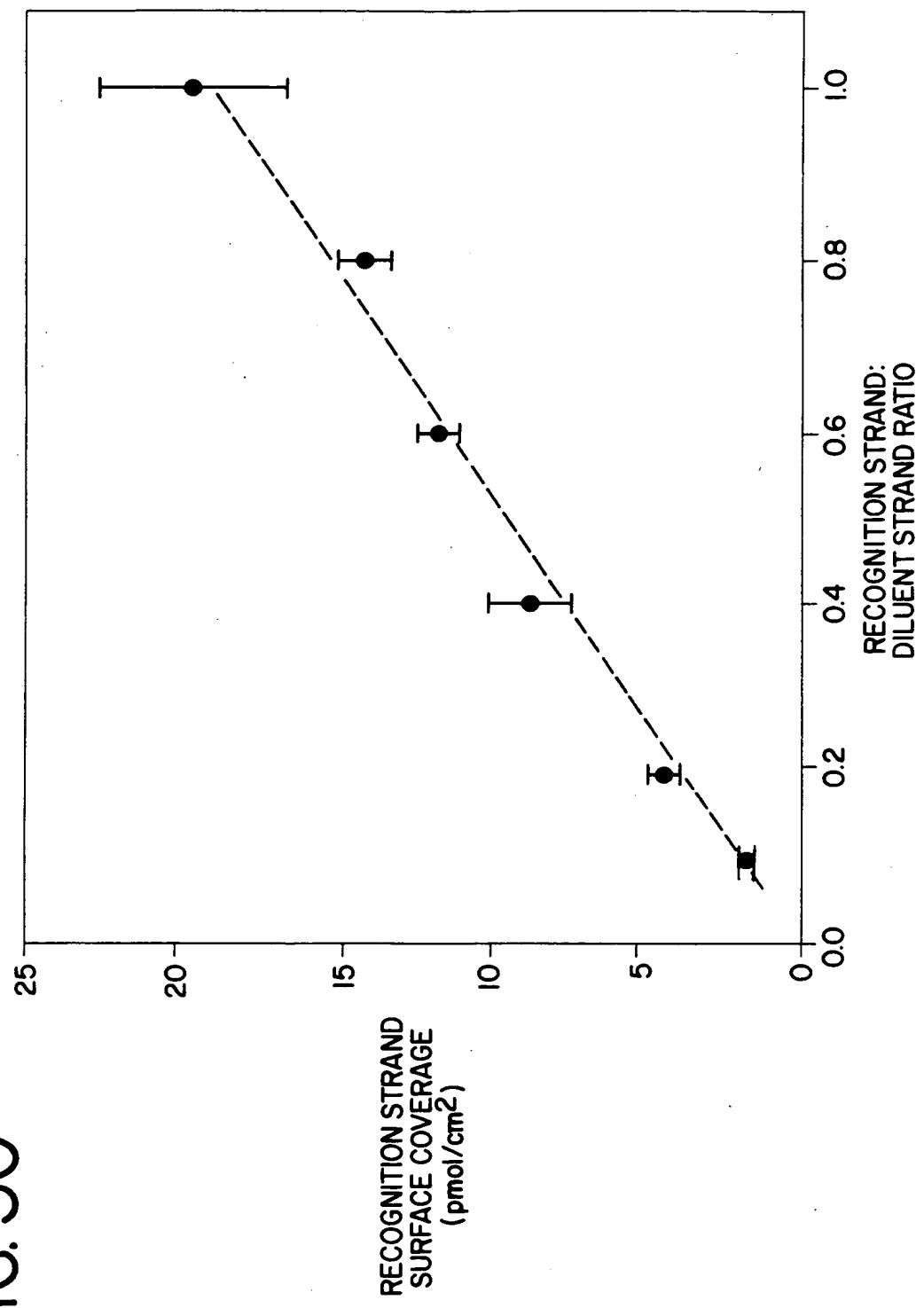
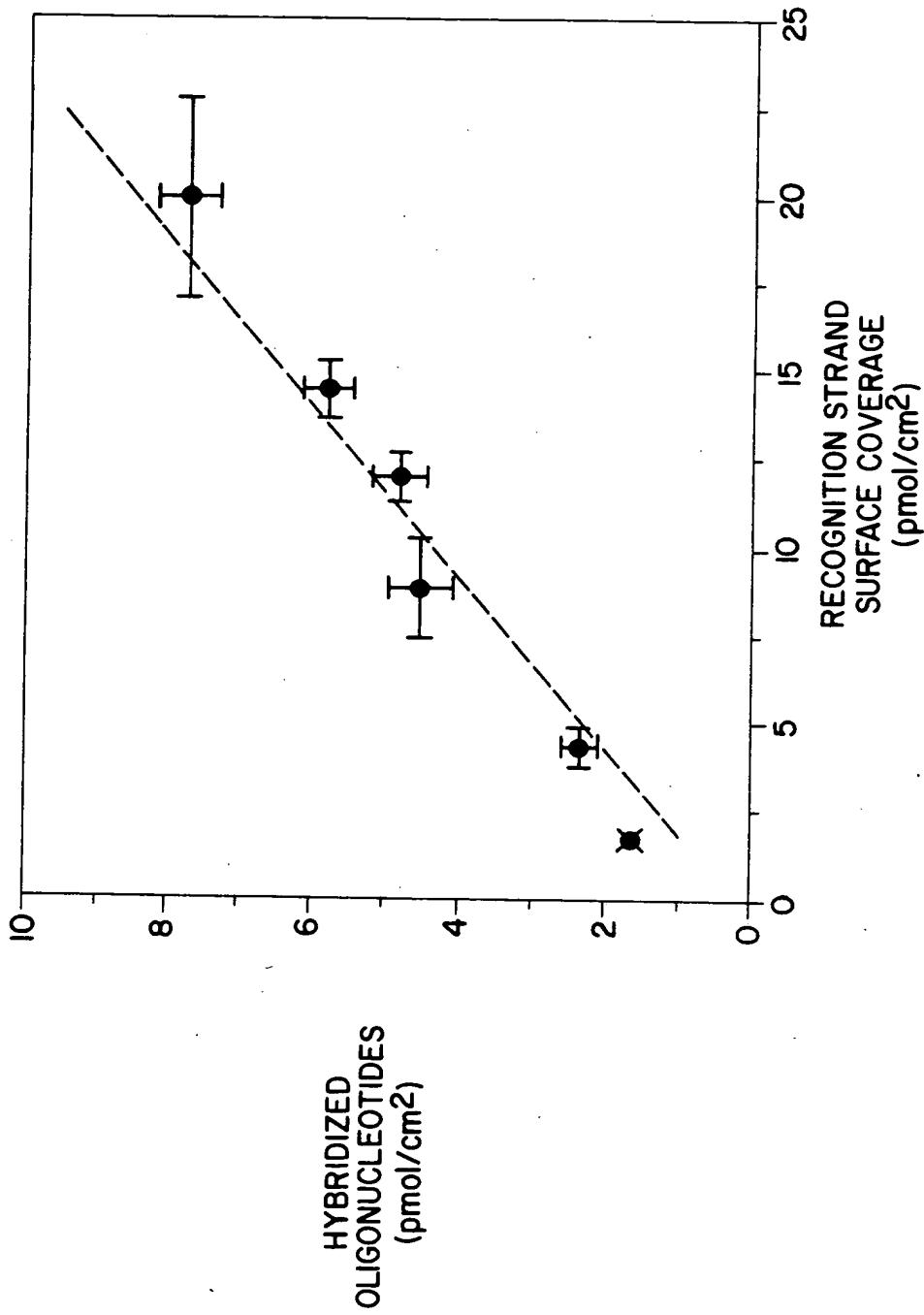


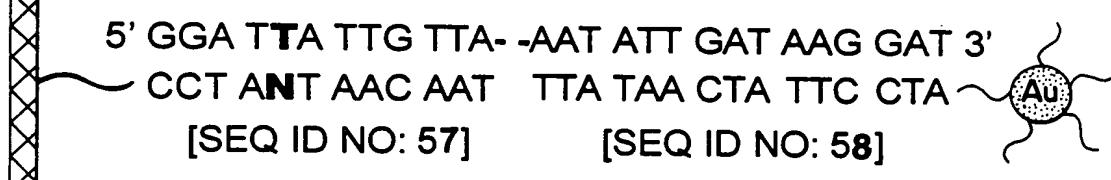
FIG. 30

FIG. 3I

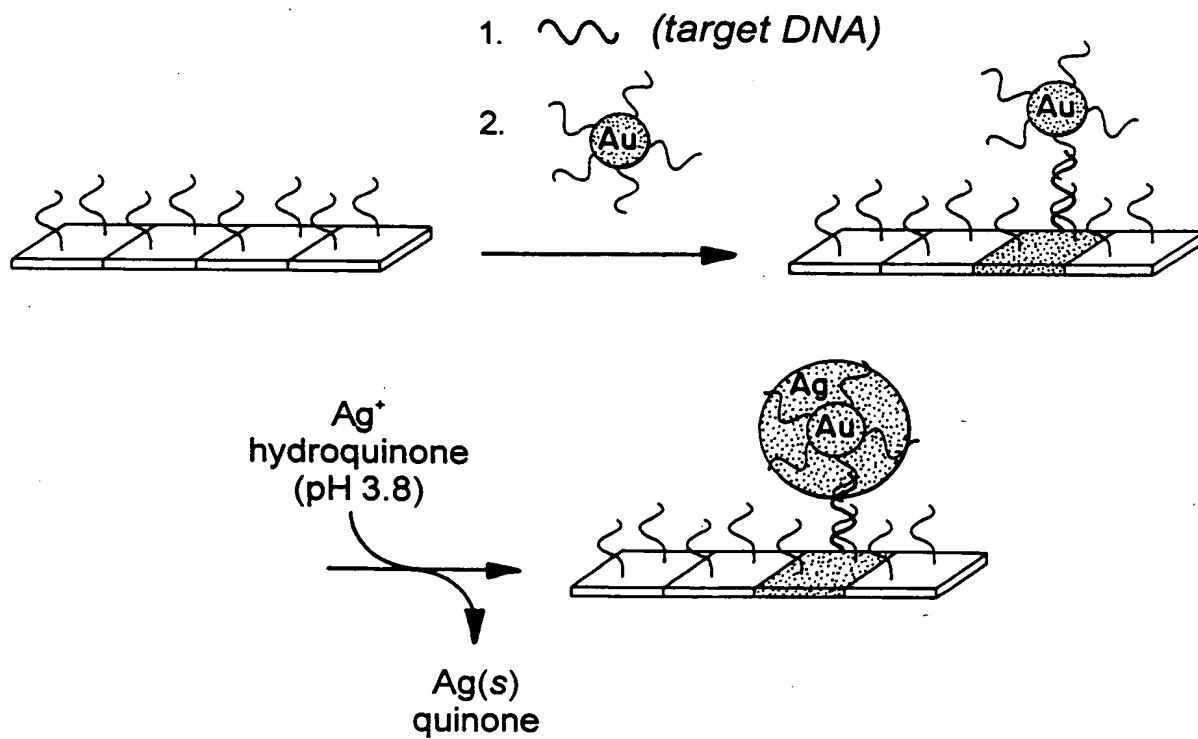


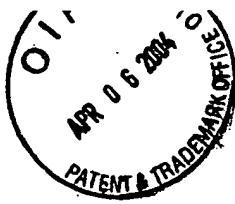
# FIG. 32

[SEQIDNO:56]



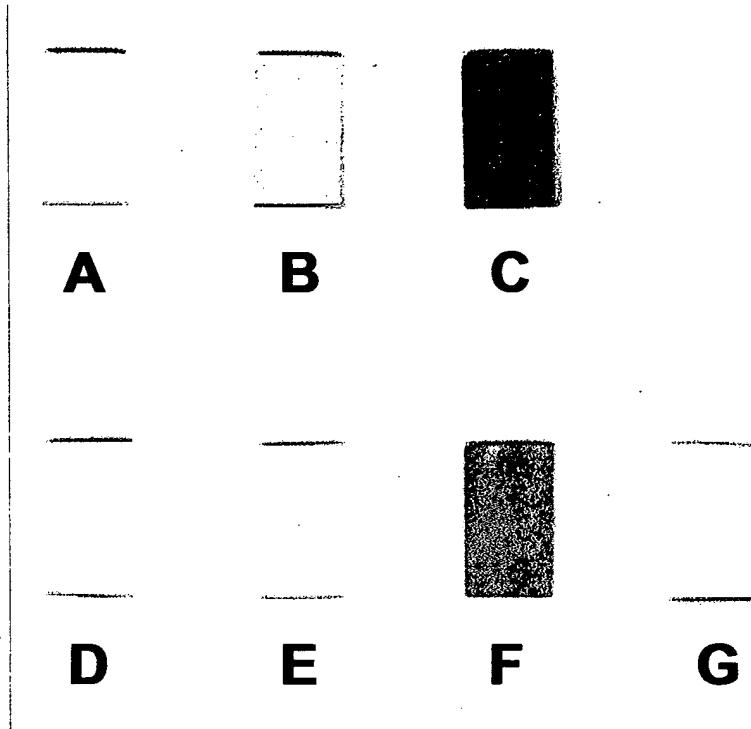
**N** = A (complementary),  
G,C,T (mismatched)

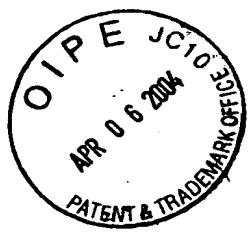




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## FIG. 33





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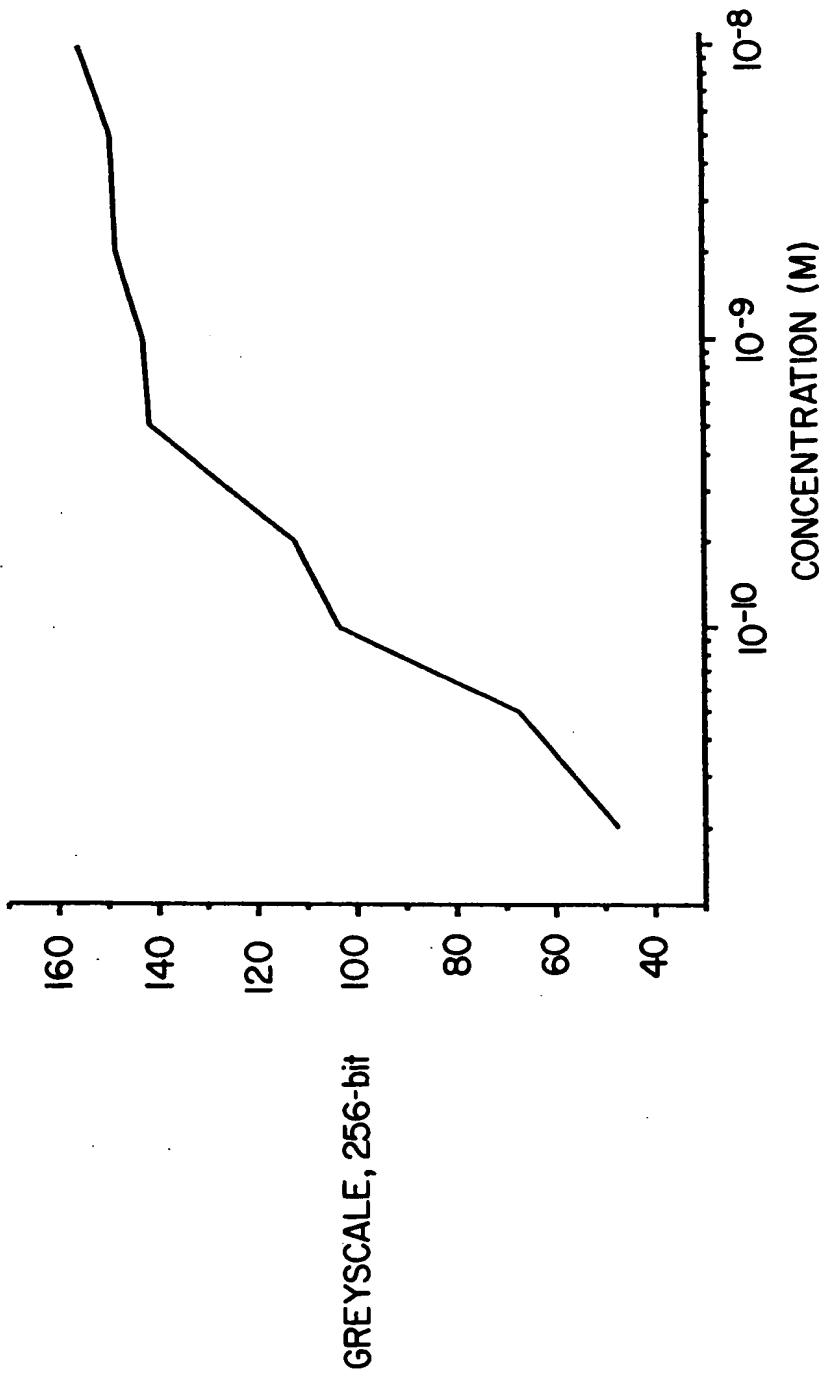


FIG. 34



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FIG.35A

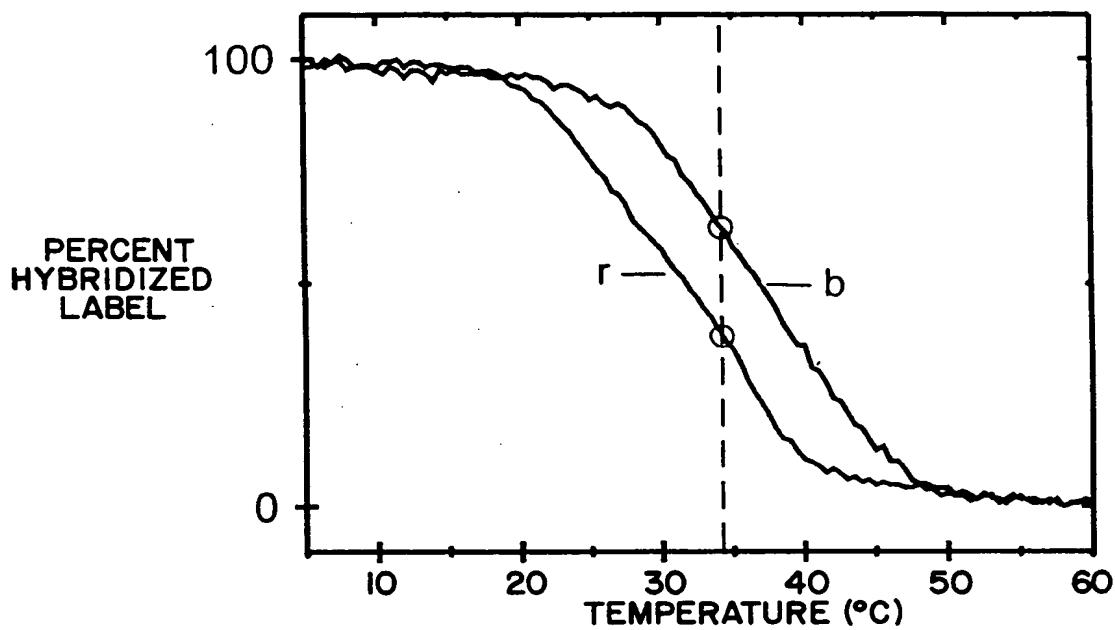
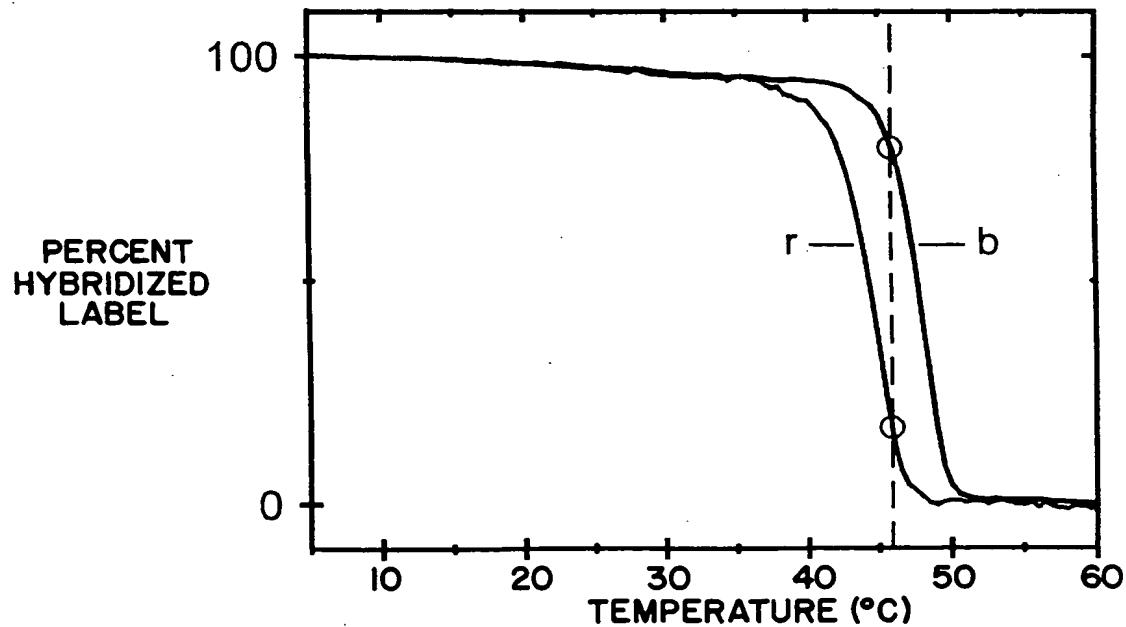
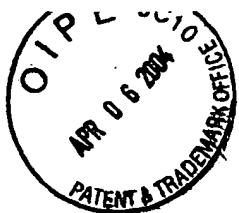


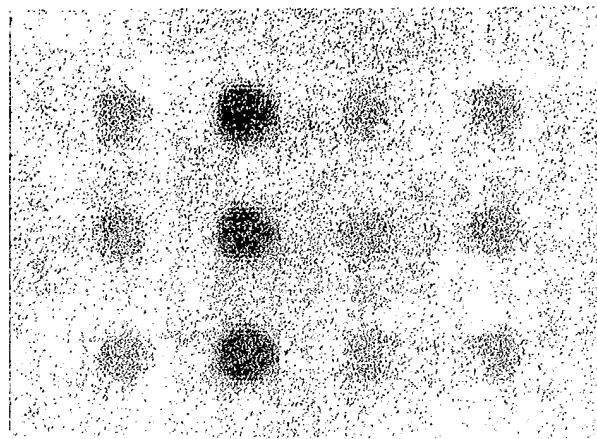
FIG.35B



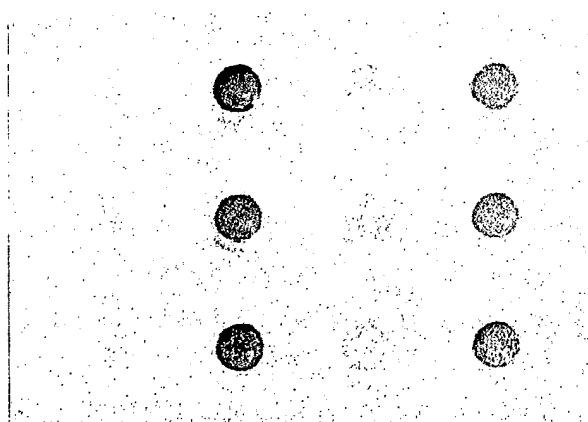


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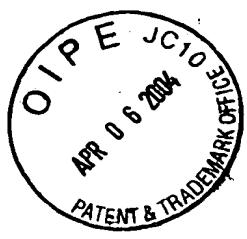
**FIG. 36A**



**FIG. 36B**



C A T G



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FIG.37A

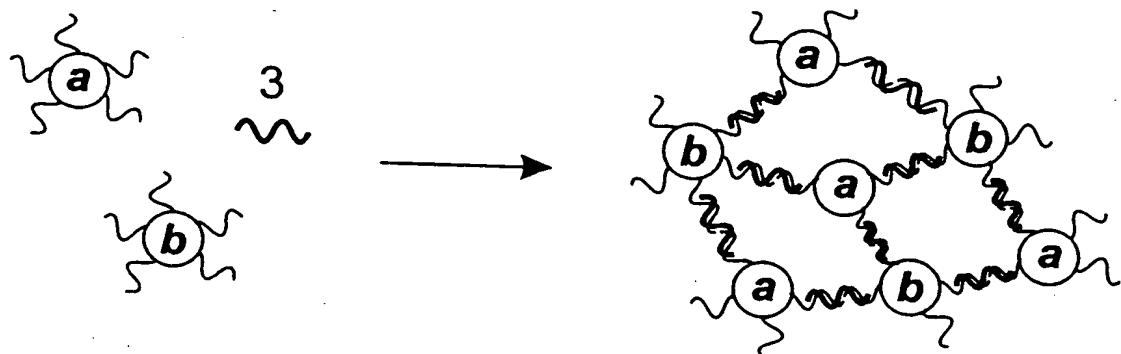
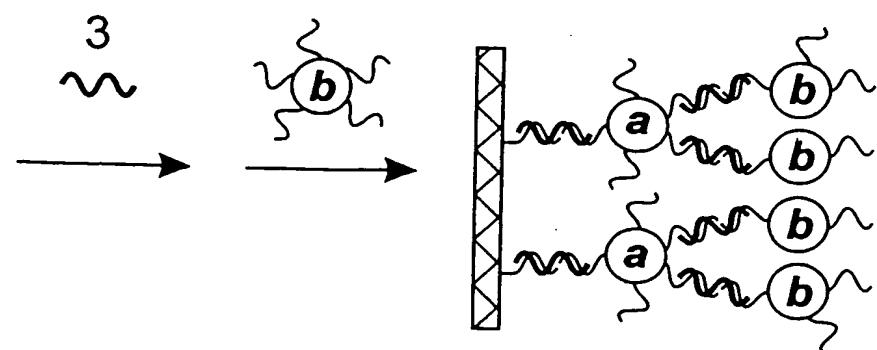
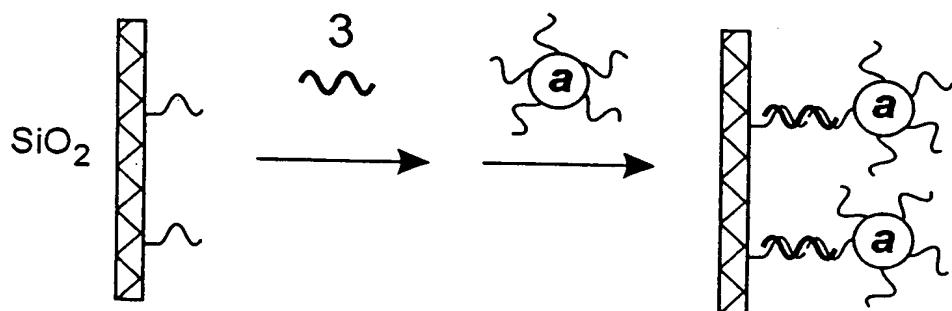


FIG.37B



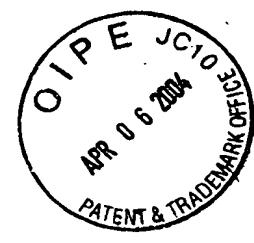


FIG. 38A

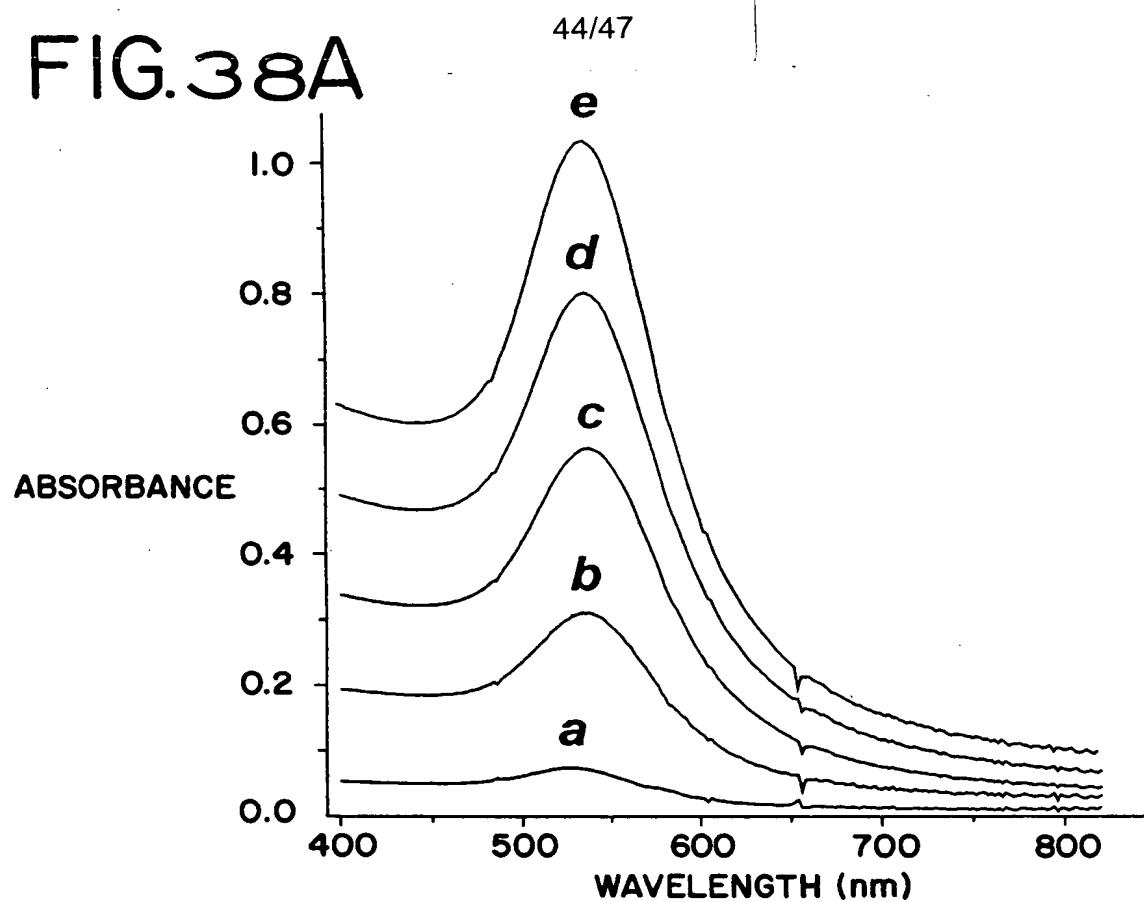
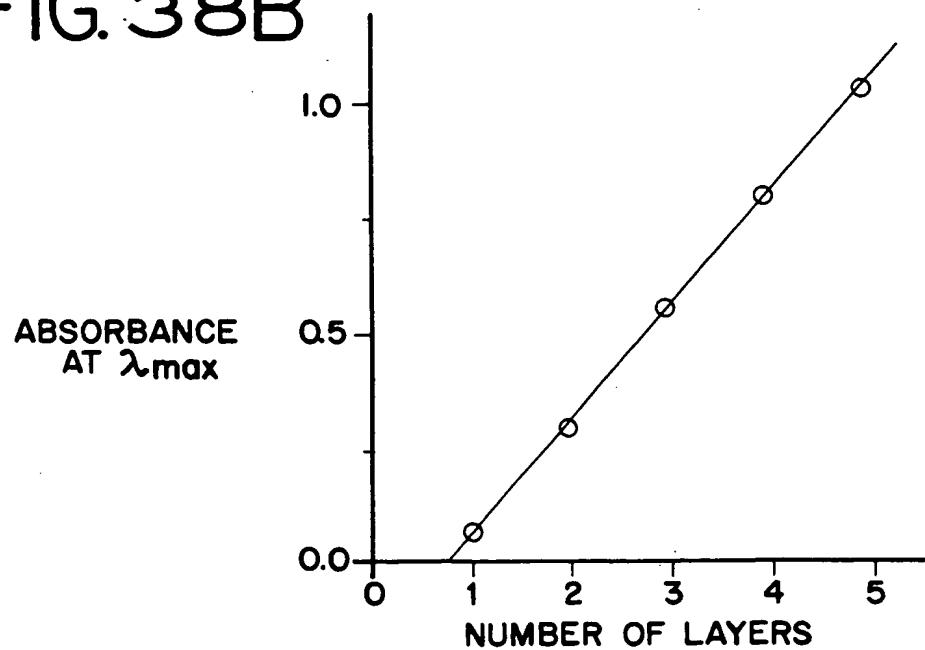
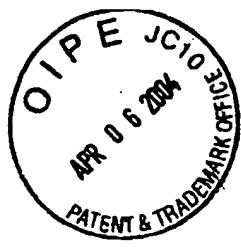


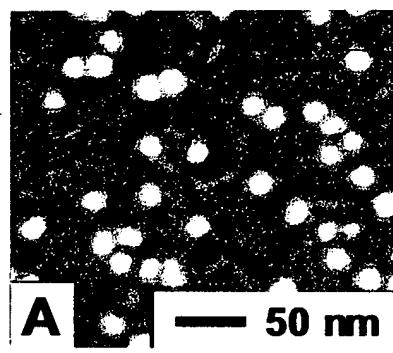
FIG. 38B



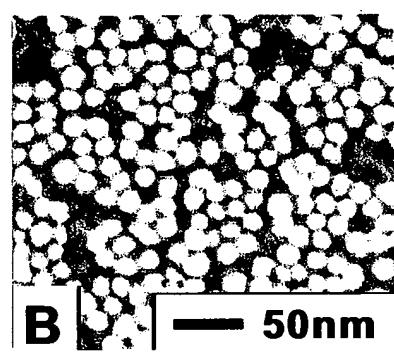


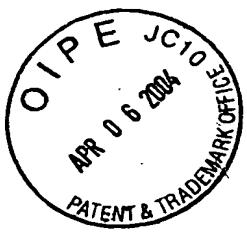
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**FIG. 39A**



**FIG. 39B**





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FIG.39C

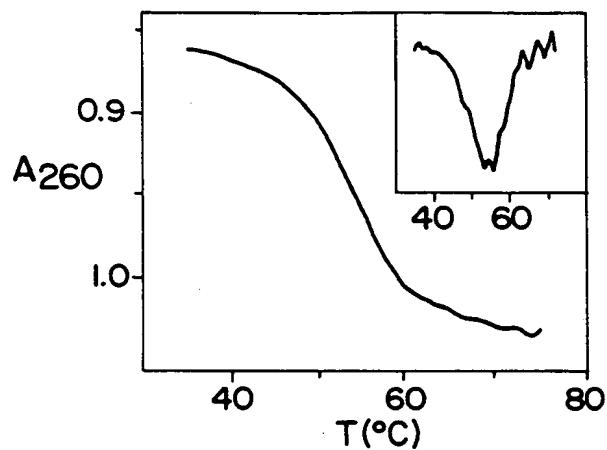


FIG.39D

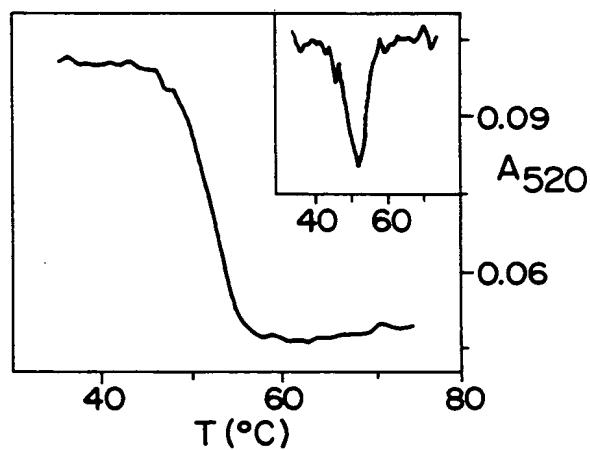


FIG.39E

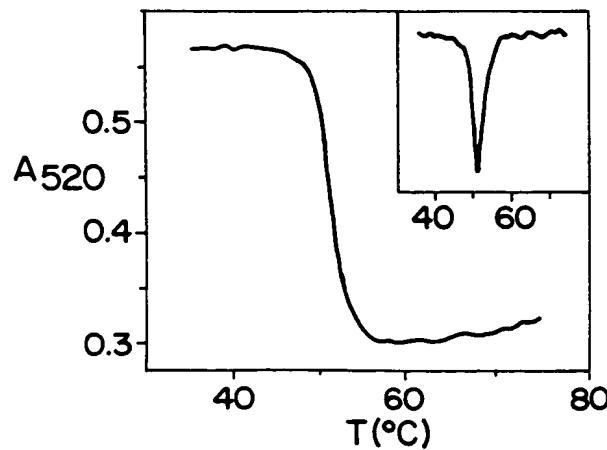
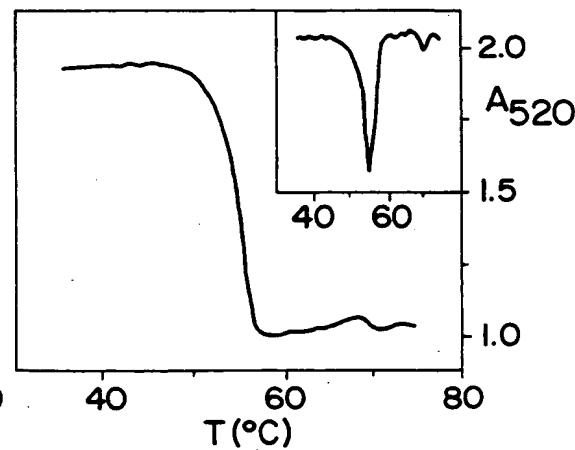
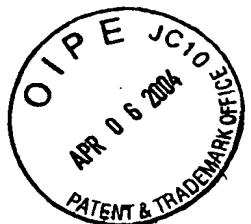


FIG.39F

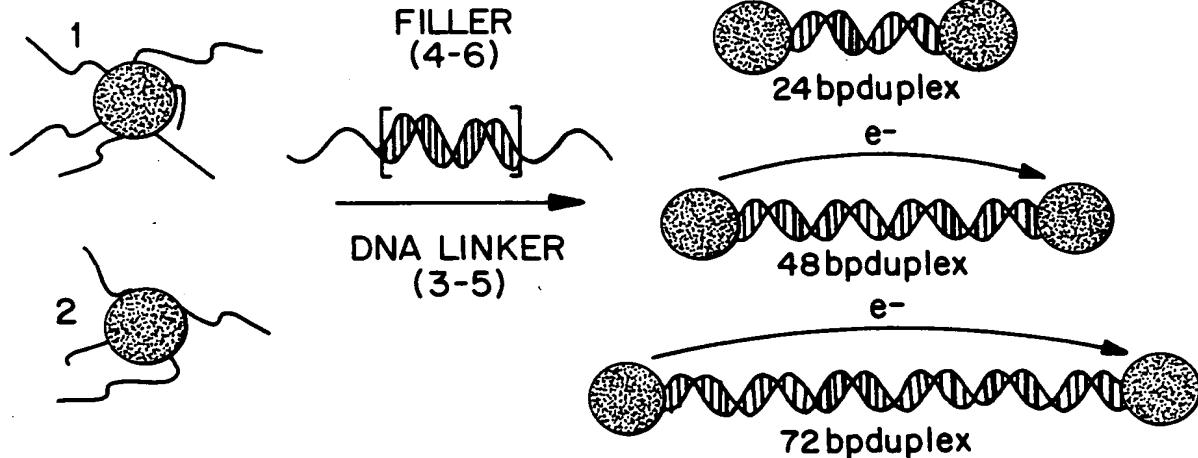




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}

## FIG. 40



## FIG. 41

